

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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DIARY OF FORTHCOMING EVENTS.

Club Secretaries and others desirous of announcing the date of important fixtures are invited to send particulars for inclusion in the following list:

Sept. 26 ... No. 40 Squadron R.A.F. Dinner.
Oct. 5 ... Aviation Meeting at Barcelona.
Nov. ... Entrance Examination for R.A.F. College.
Dec. 19 to ... Paris Aero Show.
Jan. 4, 1920.

EDITORIAL COMMENT

THE fate of the big rigid airships upon which work has been stopped, in obedience to the demand for economy, still hangs in the balance. The position at the moment is that there are five of these large craft on the stocks in various stages of completion, all of which are larger than R 34, which set up the Atlantic record a few weeks ago. Of these, R 80 is said to be 90 per cent. completed, and work has been stopped, Messrs. Vickers, who are the contractors, being still, at the time of writing, awaiting a decision by the Government as to whether she is to be finished or scrapped, the latter course entailing a waste of several hundreds of thousands of

pounds. R 36, building by Messrs. Armstrong Whitworth, is about one-third completed, and unless something happens very shortly she will be scrapped, although about a quarter of a million has been expended already. R 39 is well advanced, as also is R 37, the latter at Messrs. Short's works at Bedford. Work on all these craft has been ruthlessly stopped, and it is clear that, except possibly in the case of R 80, the Government will expend no more money on their construction.

The only way out of the situation is for private enterprise to purchase these ships from the Government, complete them, and run them commercially. As a matter of fact, there is still another way out, and that is by way of an offer of sorts from the Government of an associated Power which is able to visualise the future with a surer eye than our own, and seems determined to develop the big airship and to take advantage of all the experience for which we have paid so dearly. We refer to America, which has laid certain proposals before our own Government, which, if they be accepted, would enable us to complete the ships building at practically no cost to ourselves. What is likely to happen in this direction we cannot, of course, say, but we should very much prefer to see the ships taken over by British enterprise and run commercially, as we are fully assured they could be.

Economy is a fine thing, but we have scarcely come to the pass when we want to hand over the whole of our experience to our strongest rival simply to assist her in doing what we dare not undertake for ourselves. Since the successful voyage of R 34, the Americans have conceived a profound belief in the big rigid as a commercial proposition, and there is no doubt they intend to go all out on its development and use. From the point of view of aviation at large, this is doubtless a very good thing, but we certainly do not like to contemplate this country, which did most of the investigation and experiment during the War, falling behind in the race for useful aerial supremacy whether in lighter- or heavier-than-air craft. Nor need we do so, if the Government and private enterprise can get together and agree upon a common line of policy in which something more than "sympathetic support" shall be given by both parties to an arrangement.

The
Future
of the
Big Rigid

Last Monday's Conference

Last week the Air Ministry decided to call a conference between its representatives and "interested parties" in the future of the big rigids, this conference to be held last Monday. In the first place, we hold that the term "parties interested" means what it says. The Air Ministry made a public announcement in the Press that this conference would be held, and invited "interested parties" to ask for cards of admission. It thus made a public statement upon a matter of public interest, and invited *bonâ fide* applications from individuals or firms for cards of admission. What happened was simply that the Air Ministry organised a packed meeting which got the matter of airships no farther forward.

Much has appeared in the Press recently about the future of the airships, and it has therefore become a public matter to a greater extent than usual. The imagination of the people has been fired by the success of R 34's voyage, and by the constant sight of the "British Zepps" in the skies over our largest cities and towns. Moreover, in the matter of the disposal of the ships now building, there is involved a very large sum of public money in which the people are very directly interested. If, then, the Air Ministry and the Government were sincere in their apparent desire to do the best possible in the matter of these ships, it would follow that there was nothing to conceal, and at least the Press, who were tacitly invited to ask to be admitted, allowed to have been present at the conference, which, we repeat, was to be open to "interested parties." But these are not the methods of the Ministry. Application for permission to be present merely elicited a reply to the effect that this was to be a private meeting for the discussion of private matters between the Ministry and "persons interested." A report, it was said, of the proceedings would be officially issued later. It seems to us the Air Ministry has simply succeeded in making itself look ridiculous. If the conference was to be a private affair, then nothing ought to have been said publicly. The Ministry knows the people it wants to discuss things with, and could have invited them privately, and not given the public a smack in the face by first inviting them and then shutting the door. We have no complaint on our own account, since, from all we have heard about the proceedings at this wonderful conference, we saved time and temper by not being present.

What seems to have happened was that Gen. Seely, who presided, said precisely nothing in a great number of words, and that the representatives of the great armament firms, who seem to have been the only "persons interested" in the proceedings, said exactly nothing in a very few. The representative of the Postmaster-General attended to say that if the business firms interested in aviation saw fit to constitute airship services, his department would give the "most sympathetic consideration to any feasible proposals." Gen. Seely, later on, could not commit the Government to anything in the shape of subsidies, but any schemes of promise would receive their "most sympathetic support." The whole of the proceedings demonstrated that the Government has no settled policy regarding the future of commercial aviation. It had been expected that the Air Ministry would have put forward something like concrete proposals for the sale of the airships now on the stocks, and have told the conference what the policy of the Government generally was to be in the matter of aviation. Instead,

both sides were obviously sparring for an opening. The Government seemed to be afraid to make a proposition, because by waiting it might get better terms, and the "persons interested" were waiting for the Government to lay the cards on the table. And so the conference separated without anything done or any progress made, and left with the parting warning from Gen. Seely that time was short, and the Government must have the proposals of the private interests by the end of the month!

One useful thing only seems to have come of the affair. It was arranged that Gen. Sykes should form a committee of officers on the staff of the Ministry to advise firms contemplating the establishment of airship services on such matters as the amount of capital required to initiate them, costs of running, and so forth. That means that people need be under no misapprehension in the matter of costs, so far as they have been ascertainable by the Air Ministry experts, who alone have exact knowledge of these things. Further than this, the conference produced nothing, and the parties are still watching each other from their respective sides of the fence. Why does not the Ministry be frank, and state the real terms upon which it is willing to part with the airships now under discussion? It must know—it does know—what terms the Government is prepared to make with private firms for the sale of the craft. Why not say what they are at once, and be done with huckstering?

The Gattie Clearing House and Aviation

Our sister journal, the *Auto.*, has been a warm supporter of the principle of the Gattie scheme of a central goods clearing house for London, and in so far as it is applied to land transport, it is probably right. Undoubtedly, if the major part of the claims advanced in favour of the scheme can be justified—and we are inclined to think they can—there can be no question that it ought to be adopted. There is one claim, however, which cannot be fully justified. Mr. Gattie, in his evidence before the Board of Trade Committee which is enquiring into the *pros* and *cons* of the clearing house scheme, said that he proposed to use the roof as a landing and taking off stage for aeroplanes, thus, as it were, centralising transport by land and air. It has been pointed out, large as the proposed area is to be, it is too small to be effective for the purpose of landing and despatching aircraft. The clearing house is, if it ever materialises into accomplished fact, to cover some 15 acres of ground, and the roof is to afford a space for landing 1,400 ft. long by 480 ft. wide. Now, the Report of the Civil Aerial Transport Committee lays it down that it is necessary to have a clear run of 600 yards in all directions, with an area of 60 acres, or four times that of the roof of Mr. Gattie's clearing house. Major Blake, in the *Daily News*, lays it down that an aeroplane of the Handley Page type requires an aerodrome at least 1,200 ft. in all directions, and even the Air Ministry in its competition rules allows for a space of 825 ft. in all directions for landing. There is no need to question these figures, which may be taken as correct for all practical purposes, so that the conclusion must be inevitable that the proposed clearing house cannot be adapted to the purposes of aerial navigation. If it were possible for an aeroplane to land or take off in any direction at all, it would be simple enough, as the 1,400 ft. length of the building would just about suffice. But the trouble is that this

Flight—And the Men



Mr. FREDERICK KOOLHOVEN, Chief Designer, The British Aerial Transport Co., Ltd.

"Flight" Copyright.

is just what an aeroplane cannot do. It must land and ascend into the wind, and, obviously, the 480 ft. of width is totally inadequate.

Further, the plan of the clearing house provides for no fewer than 26 towers ranged on either side of the main building. This feature of its construction seems to be fatal, since machines would have to come into the aerodrome at a sufficient height to miss the towers, and would therefore require far more landing space than as though they were not there. We are afraid that, unquestionably meritorious as the scheme is in principle, it is, if we may be permitted to express it thus, a wash-out so far as direct aerial communication is concerned.

The Small Airship as Explorer

The question of the use of the aeroplane in opening up new countries has often been debated, and there is little doubt that it can be used to extreme advantage, in such countries as central Australia, where open country, likely to afford good landing grounds, is the prevailing feature. Singularly enough, the possibility of using the small airship for the exploration of new lands has not been as thoroughly discussed, but there is nevertheless a very strong probability that it will be found to be of extreme use in this direction, since it possesses features of air endurance beyond those of the aeroplane which render it more independent of the nature of the contours and natural features of the country over which it is operating. The exploring aeroplane might very well be compelled to make a landing in dense bush or forest, for example, where the low-flying airship would have leisure to examine the features of the country, and, if no suitable landing ground were discernible, would

return to her base for renewal of supplies before trying again.

We are minded to these reflections by an interesting report that has reached us to the effect that a proposal is on foot for a survey of British Guiana by airship. Although the colony has been in British possession for 120 years, it has never been surveyed owing to the difficulties of transport. It is known to be extremely rich in minerals. Gold is washed in all the river valleys, while all the mountains are more or less auriferous. There are also promising diamond fields, while iron ore and manganese are believed to exist in considerable quantities. So far as we understand the project, it is to use airships for the transport of the gold and diamonds produced in the interior, a very large proportion of which are now lost in transit owing to the difficulties of river navigation, and at the same time to prospect and survey so much of the interior as may be possible. There is no need to speculate upon the probable measure of commercial success with which the venture is likely to meet. Indeed, that would be impossible without knowing more about the intentions of the promoters and about the country itself than we can claim to know. The main points that appeal to us are that here is a field of usefulness opening up for the airship which it seems singularly capable of filling, and that it is an altogether interesting departure in commercial aviation. The sphere of the great rigid airship is by now fairly well defined, but the rôle of the small craft of the "Blimp" or "Twin" type is not so clear. Many think that it has no particular use, save, perhaps, for joy-flights at holiday resorts or as an experimental type, but it would certainly seem as though a sphere of real usefulness is opening up in the direction we have indicated.

Forced Landings in Holland

THE Air Ministry announces that all pilots, both service and civil, who are compelled to effect a forced landing in Holland should report at once by telegraph or telephone to the Military Attaché, The Hague. The Military Attaché has made every arrangement to render rapid help as soon as he has proper details. Pilots should not leave the neighbourhood before they have made a written statement of the extent of the damage done to the private property in the landing; one copy of this must be handed to the owner or local authority, and one copy sent to the Military Attaché.

Civilian Aircraft Fuel in France

THE Air Ministry announces that in connection with the opening up of civil communication by air between Great Britain and France, the French authorities have raised objections to the use of petrol and oil by civilian machines, which has been imported into France without payment of the ordinary dues, for military purposes. Aircraft companies and all others concerned must, in future, provide their own petrol and oil at Le Bourget through the ordinary commercial channels.

Air Flights to Belgium

THE Air Ministry announces that the report circulated in the Press a few days ago that a hitch had occurred in the signing of the International Air Convention is without foundation. It is pointed out that aerial communication between London and Brussels is permissible, provided that no goods are carried.

Kite Balloons for Weather Observation

PILOTS of aircraft are warned by the Air Ministry that kite-balloons will be flown from time to time for purposes of meteorological observation at the following places:—Merfield (Tor Point), Larkhill (Salisbury), Caldale (Orkneys), North Queensferry (near Edinburgh).

The cables of these balloons when flying will be marked by streamers at intervals of not more than 500 ft.

Relinquishment of R.A.F. Stations.

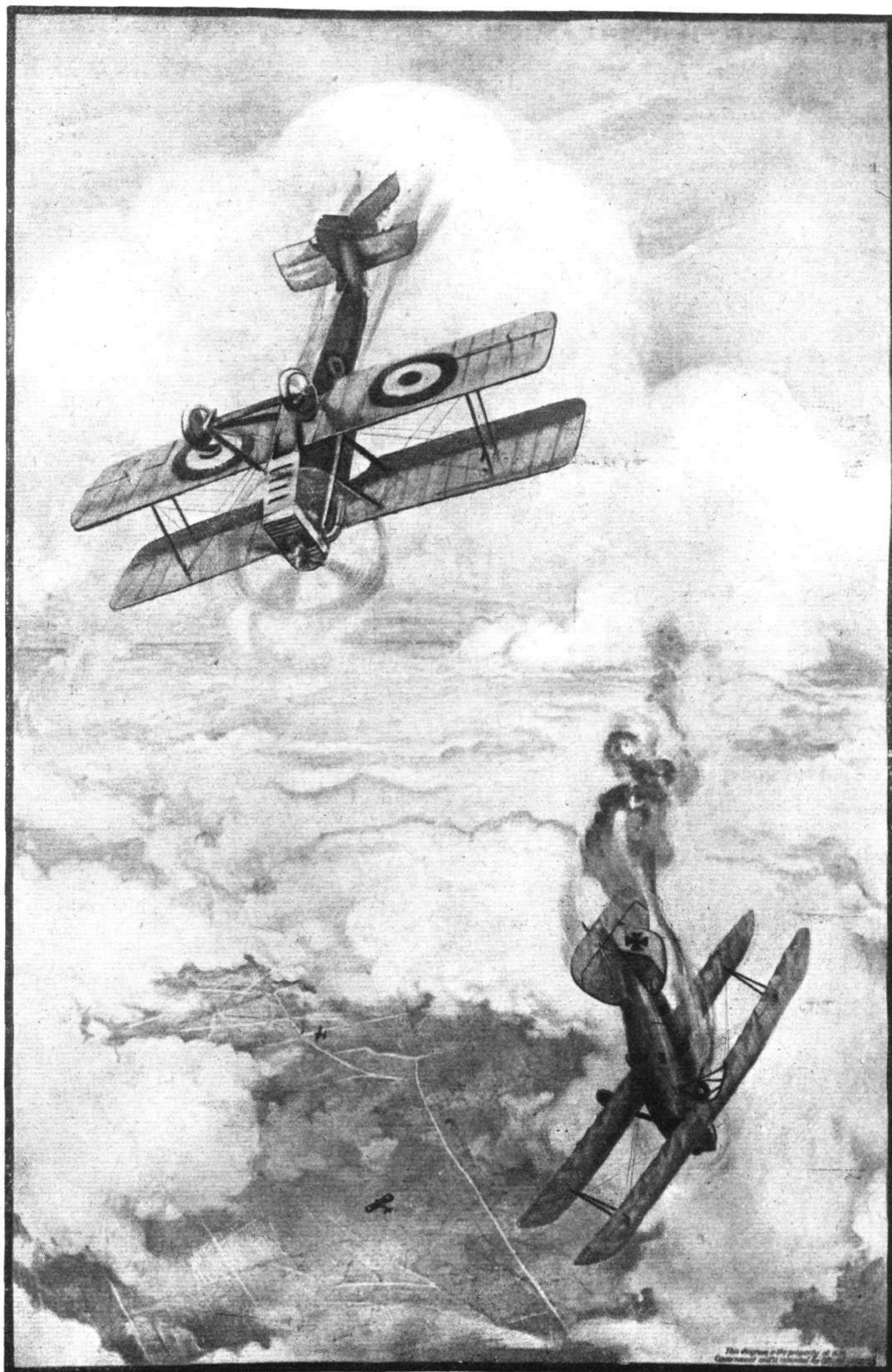
It is announced by the Air Ministry that the following Royal Air Force stations are to be relinquished and disposed of:—Lowestoft (Balloon Base); Hicking Broad (Seaplane Station); Bembridge (Seaplane Station); New Bembridge (Aerodrome); Seahouses (Aerodrome); Seaton Carew (Aerodrome); Marham (Aerodrome); Tynemouth (Aerodrome); Leadenham (Aerodrome); Upper Heyford (Aerodrome); Usworth (Aerodrome); Helperby (Aerodrome); Ashington (Aerodrome); Scalo Hall, Lancs. (Landing Ground), (after October, 1919).

Sheffield as Aviation Centre

THE *Sheffield Independent* announces that Sheffield has been chosen as one of the four permanent repair bases for the R.A.F., and that the base will probably employ 1,500 men permanently. Sheffield aerodrome had previously been chosen as a permanent civilian landing station, and is on the aerial trunk route, London-Manchester-Belfast.

FLIGHT "MILESTONES" IN AMERICAN NEWSPAPERS

OUR "Milestones" are being reproduced in American aeronautical publications without a single word of acknowledgment. We would say that these greatly lose the value of the originals in FLIGHT, as our scale drawings, prepared at great trouble and expense, are ALL of uniform scale, relatively to one another, whereas the copyists reproduce from our drawings at any old size, so that direct comparison is impossible. We issue this note of warning, as, irrespective of the discourtesy, if nothing worse, of annexing without acknowledgment the result of the work of FLIGHT's technical staff, those to whom this series appeals, should understand they are unable through foreign publications to appreciate the full value which attaches to the original FLIGHT series.—Ed.



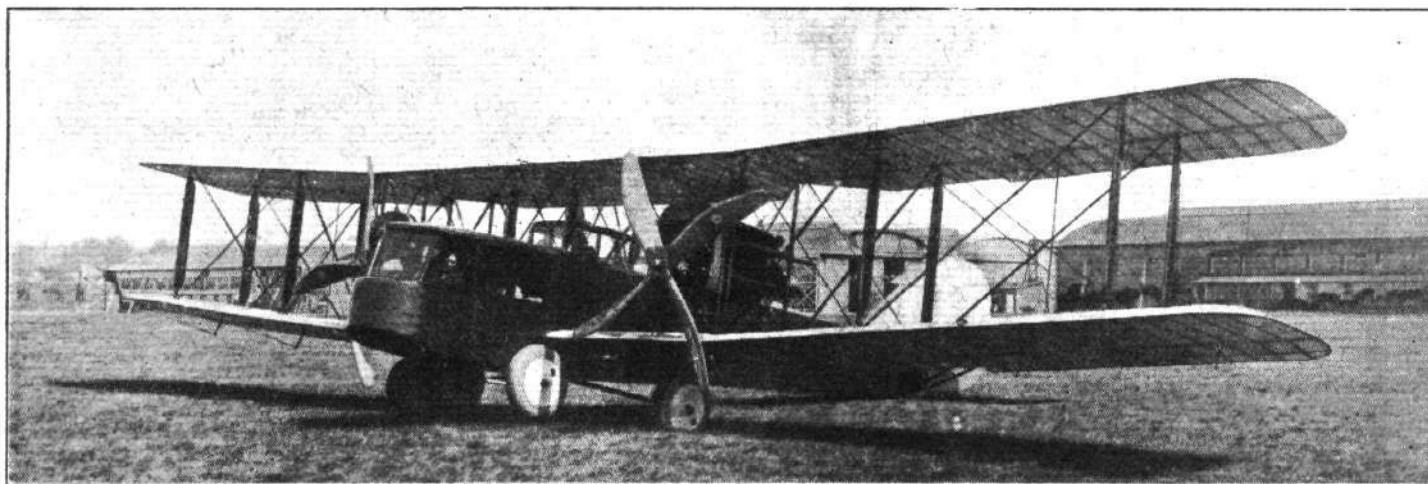
"THE LAST LOOP."—While downing a Hun your machine may have been seriously damaged without your knowledge. Under these circumstances, any unnecessary "stunting" is to be avoided. (Drawing prepared by the Air Technical Services for use at the R.A.F. Schools.)

THE GRAHAME-WHITE "AERO-LIMOUSINE"

WHAT may be described as the first item on the post-War programme of the Grahame-White Co. has made its appearance, and looks like making a success of the future before it. We refer to the "Aero-Limousine," which has just successfully emerged from its initial trials at Hendon, and which is illustrated and described herewith.

Although in general design and construction it presents nothing of a startling nature, a close inspection reveals a careful consideration of every detail that makes for efficient and thorough design. The ultimate use to which this machine

seating accommodation for six passengers on the lines indicated by one of the accompanying drawings. The whole of the interior of the cabin is upholstered in a neat grey Bedford cord, whilst large Triplex windows, extending completely round the sides and front of the cabin, give plenty of light and afford an excellent view in every direction. A large door on the port side of the cabin—well clear of the tractor screw—and a strong foot-step allow of easy access. There is an adjustable ventilator in the nose of the cabin, and two air-outlets in the rear of the roof for ventilation, whilst the



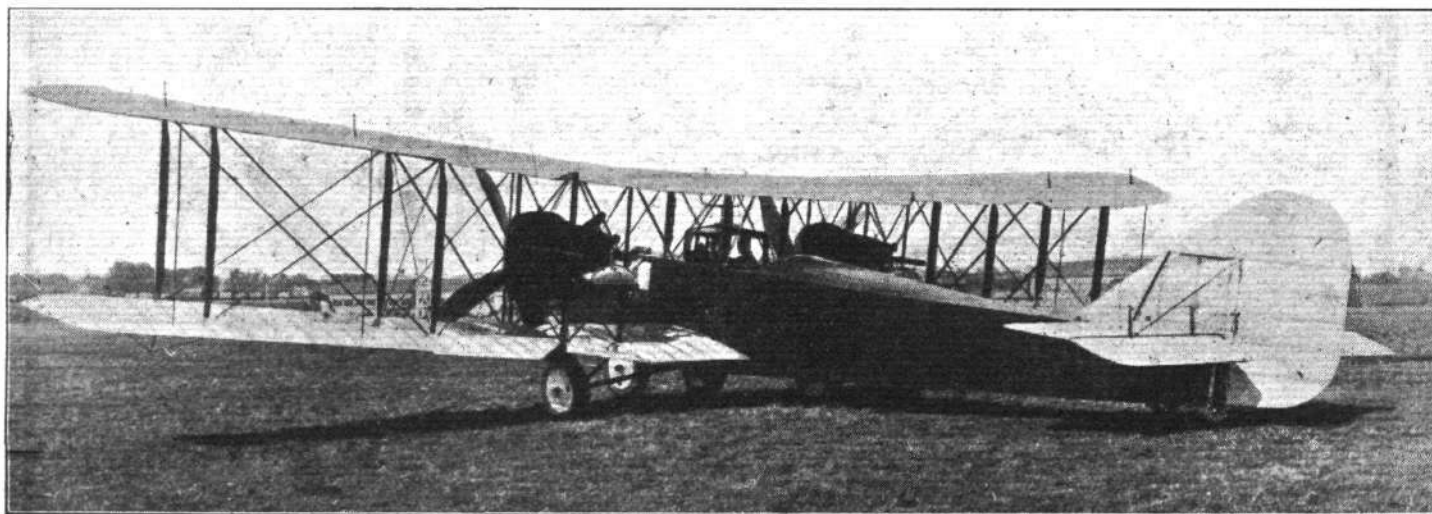
Three-quarter front view of the Grahame-White "Aero-Limousine."

is to be put has been borne in mind in the design of each detail throughout. It has been the aim of the designer, M. Boudot, to produce in this machine the safety, combined with the comfort, of the passengers, and reliability rather than mere performance, and the question of weight has not been allowed to predominate over strength, utility and comfort.

The "Aero-Limousine" is a *fuselage* biplane fitted with two engines, one mounted between the upper and lower planes on each side of the *fuselage*, driving direct four-bladed tractor screws. The passenger's cabin, which is in the extreme nose of the *fuselage*, is, so far, the most comfortable and luxuriously

temperature can be regulated by means of an electrically heated carpet. Communication can be made with the pilot by means of a speaking tube, and an air speed indicator and altimeter are fitted in front of the cabin.

The pilot's cockpit is situated at the rear of and immediately above the cabin. It is exceptionally roomy and comfortable, and ample protection is provided by means of a sort of conning tower. The view, too, from the pilot's cockpit is quite good. All the instruments are neatly disposed around the cockpit, and the engine and petrol controls are located on the right and left-hand sides respectively. The engine switches, which can be operated either separately or simul-

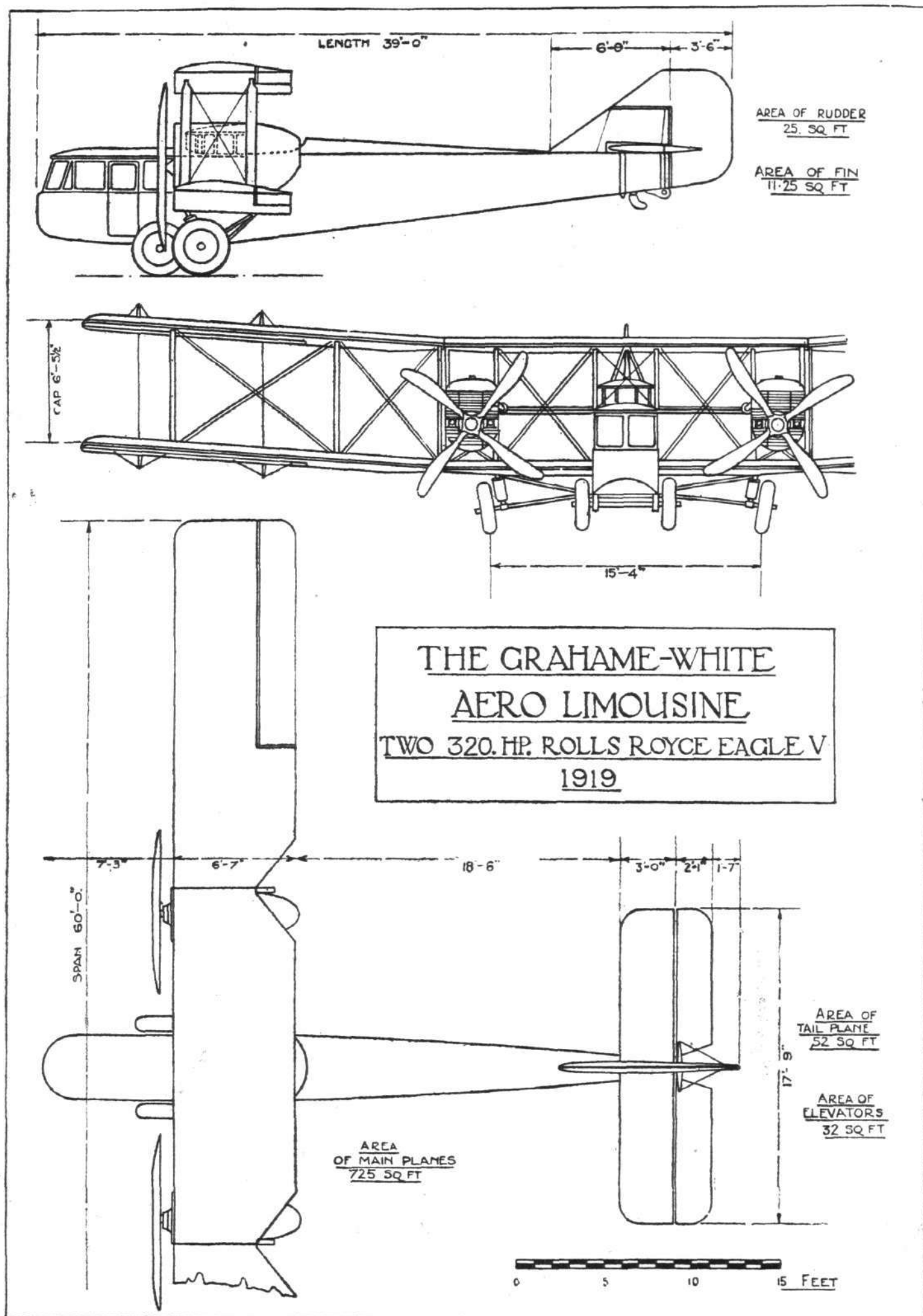


Three-quarter rear view of the Grahame-White "Aero-Limousine."

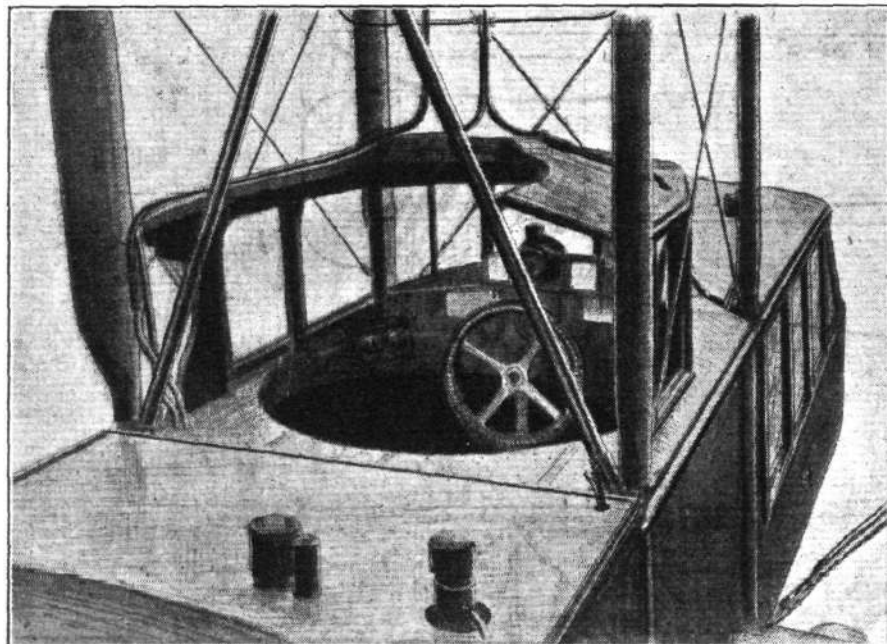
fitted one we have seen. It is apparant that the Grahame-White Co.'s experience in motor car body work—which, by the way, has been one of the firm's "side-lines" for some time back—has come in useful. The whole cabin, in fact, is exactly similar to a first-class motor-car body, even to the outside finish. In this first model provision is made for four passengers, seated in pairs tandem fashion, the left-hand front seat being hinged so as to swing back and give access to the front seats. In future models, however, it is proposed to lengthen the cabin and provide two additional tip-up seats giving a

taneously, are mounted slightly forward on the left-hand side of the pilot.

The control is of the wheel and rudder bar type, the arrangement of the rudder bar being most noteworthy. In this the bar is mounted below the cockpit floor, in which are cut two slots having their edges reinforced on the top by steel plates. Working in these slots, and sliding on the plates, are the foot pedals, which are connected to the rudder bar by a spindle extending below each and working in a slot in the rudder bar. The rudder bar is of wood reinforced by steel plates with



THE GRAHAME-WHITE "AERO-LIMOUSINE": Plan, side and front elevations to scale.



Sketch showing the pilot's "conning-tower" on the Grahame-White "Aero-Limousine."

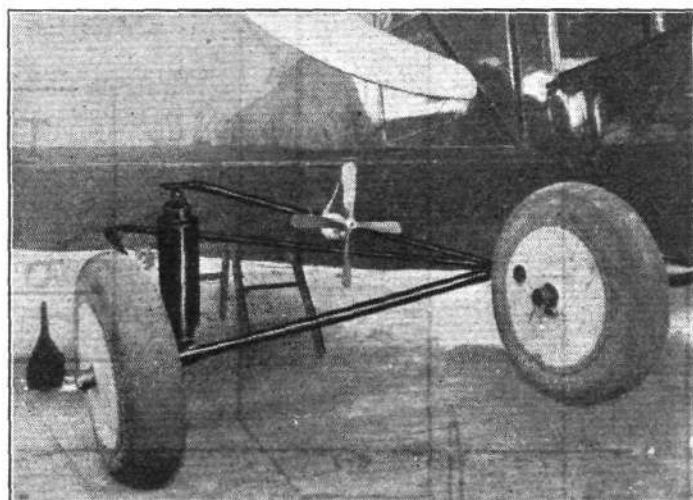
lightening holes. On the left of the pilot's seat is a hand-wheel operating the tail plane incidence gear, which is of the usual nut and worm type.

In construction the *fuselage* follows more or less standard practice, the rear portion aft of the cabin being of wire-braced girder construction with square section *longerons* and channel-section struts, the last bay being braced laterally by three-ply. The fore portion of the *fuselage* is built up on hoop-formers of ash reinforced with three-ply, thus giving a "straight-through" construction with no wire cross-bracing. Where the formers are exposed to view inside the cabin, they are covered with a thin veneer of mahogany, which, when polished, gives a neat finish to the decoration of the cabin. The outer covering is three-ply and fabric for the cabin, and doped fabric for the rear portion. The fabric covering is "laced" on the under side by means of a novel quick-fastening arrangement sometimes used for fastening rain-coats, overalls, dresses, etc., an arrangement that can only be described as consisting of a length of "tape" which on being pulled along the edges of the covering—to which it is connected—joins the latter together.

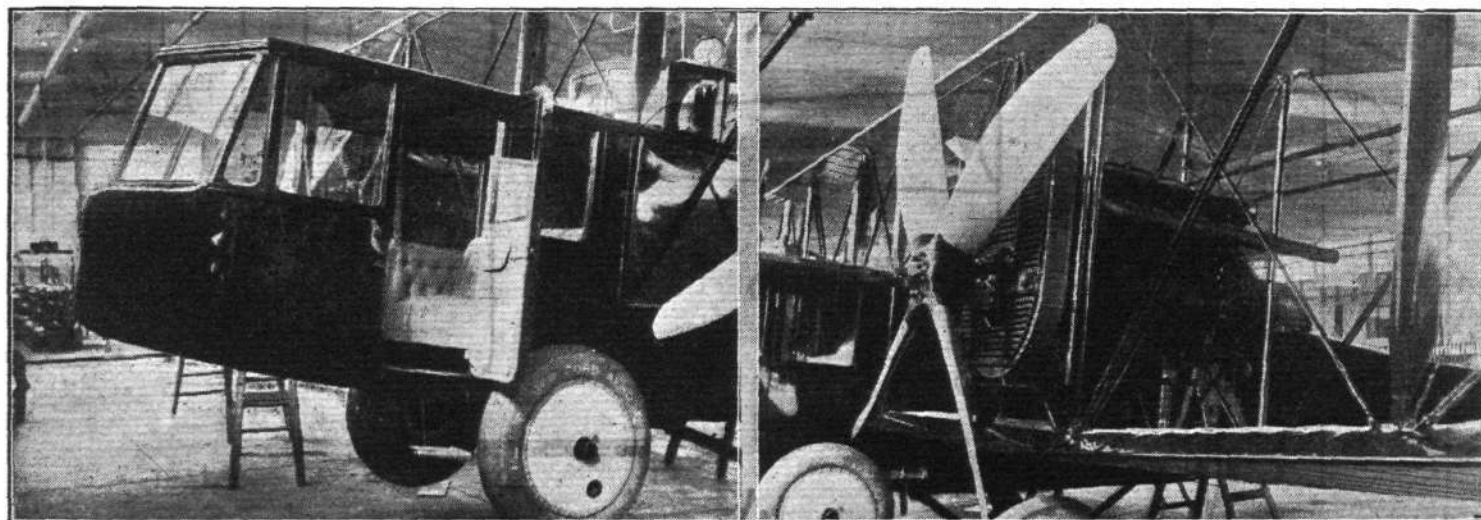
The main planes are of standard construction, and are built up in seven sections, comprising a centre section of about 20 ft. span and two outer sections for the top plane, and a similar arrangement for the lower plane, except that the centre section is divided into two by the *fuselage*. The outer sections are hinged at the roots of the rear spars so as to fold back, thus facilitating housing, the overall width folded being 28 ft. The tubular compression members are all of the same diameter, but vary in gauge according to the stresses imposed. The same fittings are thus employed in each case. Both upper and lower outer sections are given a dihedral

angle of 4 degrees, but have neither stagger nor sweepback. The interplate struts are steel tubes with built-up wood fairings giving a deep streamline shape. External bracing is by cable, streamlined by wood fairings. Unbalanced *ailerons* are fitted to both upper and lower planes.

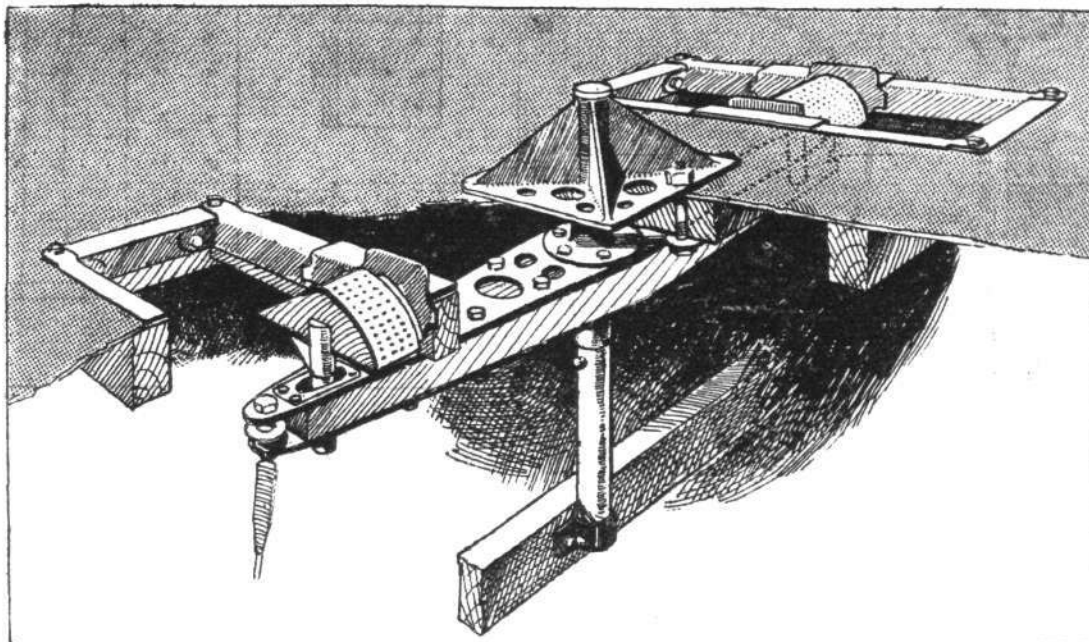
The tail plane, which is rectangular in plan form, is of



One side of the landing chassis of the Grahame-White "Aero-Limousine."



THE GRAHAME-WHITE "AERO-LIMOUSINE": Two views showing, on the left, a general view of the cabin, and on the right, the port engine and mounting.



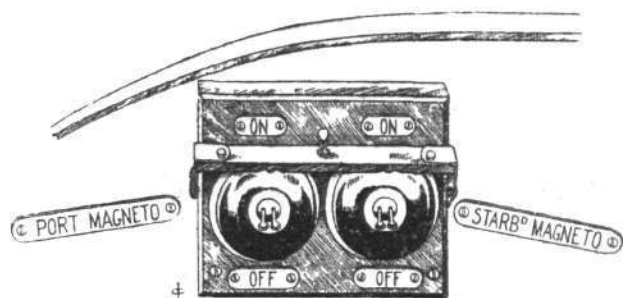
The Grahame-White "Aero-Limousine": Sketch showing the rudder-bar, which is mounted below the cockpit floor and pedals.

symmetrical streamline section, and, as previously mentioned, its angle of incidence can be varied during flight. The elevators are unbalanced and divided, whilst the rudder, which is of ample proportions, is balanced. A large vertical fin is mounted above the fuselage. All the tail surfaces are of standard construction, and are braced by cable and steel struts, which are streamlined. The tail skid is very neat and well throughout, as may be seen by one of the accompanying sketches.

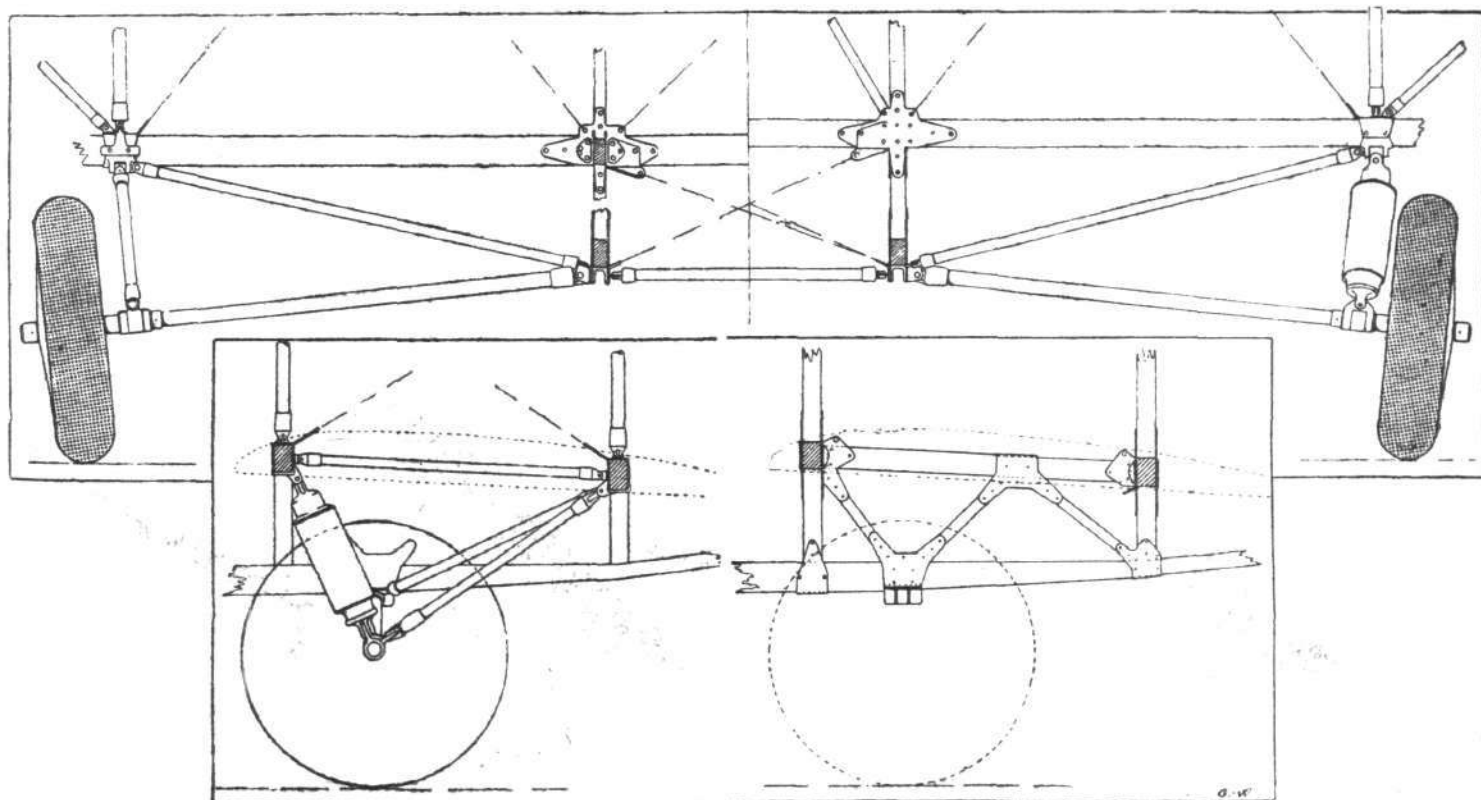
An exceptionally strong and efficient landing chassis is fitted, the general arrangement of which is clearly shown in the illustrations. It consists of two separate units, the main landing gear, and what may be termed an emergency gear. The latter, which comes into action only to prevent the machine from tipping on her nose, and to take the weight of the machine should the main chassis fail, consists of two large wheels rigidly mounted on the fuselage, slightly in advance of the main wheels.

The two wheels of the main landing gear are situated under the engines, and are connected to the main plane and fuselage by a neat and very effective triangular system of tubular members. The shock-absorbing device is incorporated into the front strut of the vee, and consists of a set of steel springs combined with an oil dashpot.

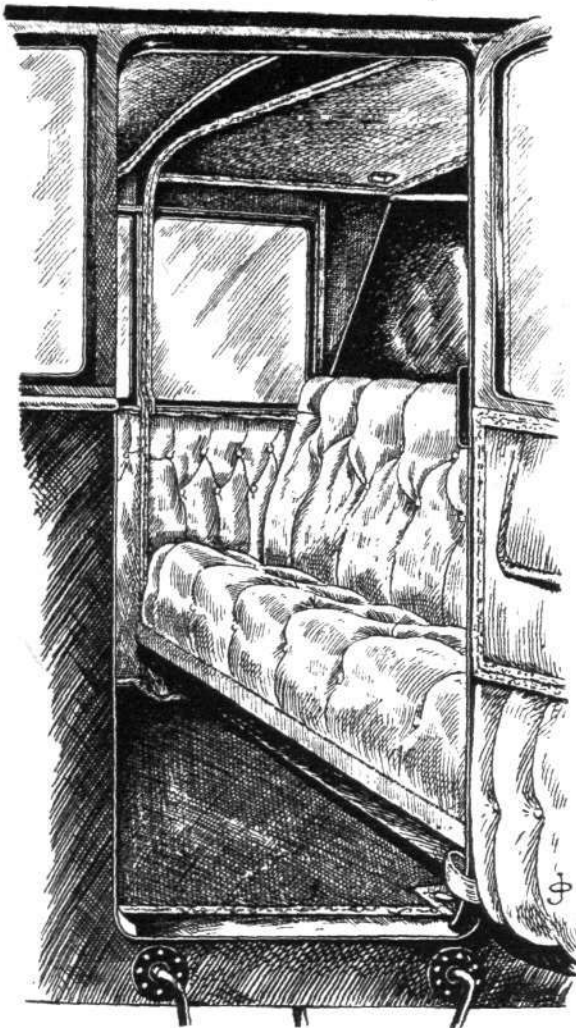
The power unit consists of two Rolls-Royce Eagle Mark V engines, of 320 h.p., mounted one on each side of the fuselage between the top and bottom planes. They are carried in strong tubular steel mountings, with the radiators in front.



The double switch for the two engines on the Grahame-White "Aero-Limousine."



General arrangement of the landing chassis of the Grahame-White "Aero-Limousine." Note the diagonal strutting of the fuselage to take landing stresses.



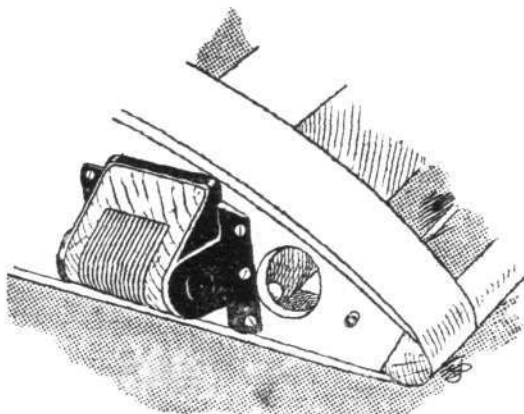
View looking into the cabin of the Grahame-White "Aero-Limousine," showing the rear seat.

The total horse-power available is well above that required to fly the machine, so that it is possible to fly comfortably at three-quarter throttle, thus considerably increasing the life of the engines, to say nothing of making for reliability. The engines can be started either by means of a starting handle, mounted on the rear of each engine, or else by way of a magneto-starter from the cockpit.

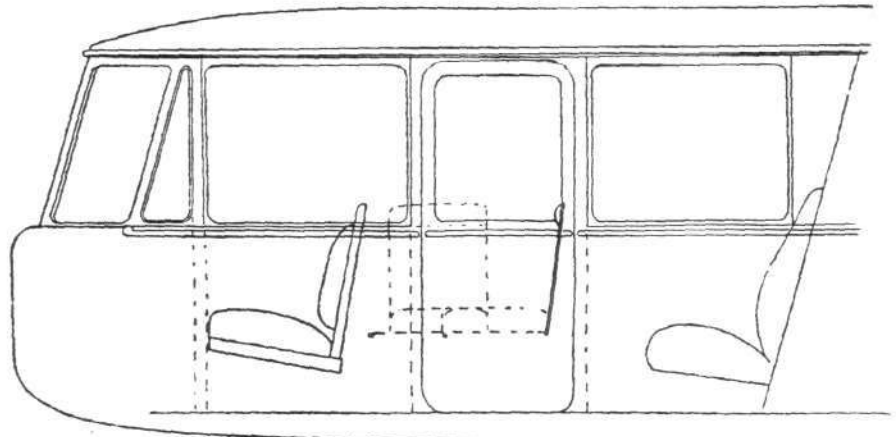
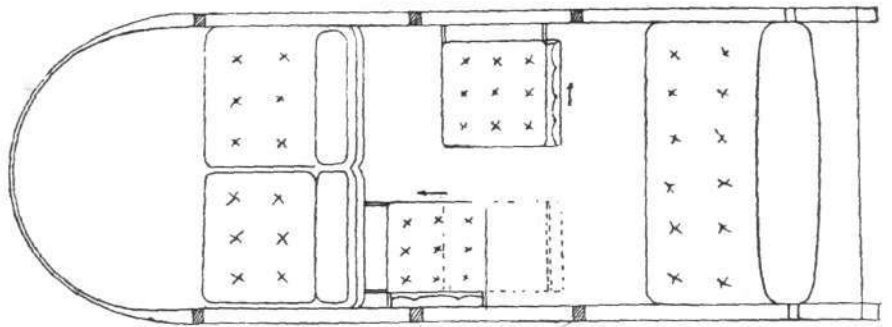
It is worthy of note that all the petrol has been stored as far away as possible from the engine and passengers, in order to reduce the risk of fire to a minimum. The main tank is located immediately behind the pilot's cockpit, whilst the gravity tanks are mounted in the centre section of the top plane. The petrol supply is maintained by two windmill pumps mounted in the slipstream of each tractor screw just below the lower plane centre section. There is also an auxiliary pump operated from the cockpit.

The following is the general specification and performance of the G.-W. "Aero-Limousine" :—

Span	..	..	..	60 ft.
Chord	..	..	..	6 ft. 7 ins.
Gap	..	..	..	6 ft. 5½ ins.



One of the wing attachment lugs, showing the ash packing, of the Grahame-White "Aero-Limousine."

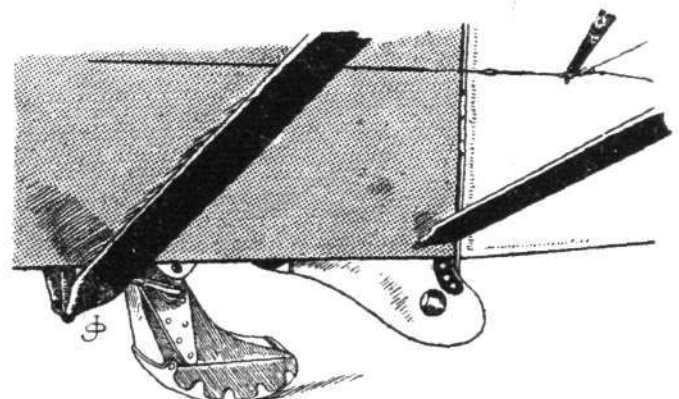


THE GRAHAME-WHITE "AERO-LIMOUSINE" :
An alternative six-seating arrangement for the cabin.

Dihedral	..	..	..	4° top and bottom wings.
Overall length	..	..	..	39 ft.
Overall height	..	..	..	11 ft.
Span with wings folded	..	..	..	28 ft.
Total area, including ailerons	..	..	..	725 sq. ft.
Area of ailerons	..	..	..	106 sq. ft.
Area of tail plane (fixed portion)	..	..	..	52 sq. ft.
Area of elevators	..	..	..	32 sq. ft.
Area of fin	..	..	..	11.25 sq. ft.
Area of rudder	..	..	..	25 sq. ft.
Maximum cross section of body	..	..	..	21 sq. ft.
Side area of body	..	..	..	162 sq. ft.
Engine, No. and type	..	..	..	2 Rolls-Royce Eagle Mark V, 320 h.p.
Tank capacity in gallons	..	..	..	125 galls.
Fuel weight (petrol, oil, water)	..	..	..	1,162 lbs.
Useful load	..	..	..	1,000 lbs.
Weight of machine, empty	..	..	..	5,785 lbs.
" " " " fully loaded	..	..	..	7,947 lbs.
Surface loading	..	..	..	10.96 lbs. per sq. ft.
Power loading	..	..	..	12.4 lbs. per h.p.

Performance Speed

Maximum speed at ground level	..	..	..	116 m.p.h.
Maximum speed at 10,000 ft.	..	..	..	105 m.p.h.
Speed at ¾ throttle	..	..	..	104 m.p.h.
Landing speed	..	..	..	50 m.p.h.
Climb to 5,000 ft., 4 mins. ; to 10,000 ft., 9.9 mins.	..	..	..	Ceiling, 17,000 ft.



Sketch of the tail-skid of the Grahame-White "Aero-Limousine." Note the protecting block beneath the stern-post.

THE GOVERNMENT AND AIRSHIPS

THE meeting of those interested in the commercial use of airships was held in Australia House, Strand, on Monday, to discuss with representatives of the Air Ministry the question of the disposal of airships and the Government's policy for assisting aerial commercial enterprise. Representatives of the large aircraft-producing firms, shipping companies and forwarding agents were present.

Maj.-Gen. Seely, Under-Secretary of State for Air, who presided, said the Government was anxious to do the best it could for the State in the disposal of the lighter-than-air type of machine and, at the same time, to aid commercial enterprise. Any nation which depended only upon service vessels would be greatly handicapped by comparison with other nations which had commercial airship services. The Government had decided that airships were to be handed over to the Air Ministry. At a conference with the Admiralty it was agreed that in future it would be the duty of the Air Ministry to tell the Admiralty what could be done in the air, for the Admiralty then to state their requirements, and for the Air Ministry then to carry out their wishes. General Seely read a letter from the Admiralty in which it was stated that the Admiralty had recently reviewed, in the light of the latest appreciation by His Majesty's Government of the general political situation, the size of the Fleet and its attendant craft. The development of rigid airships was not yet at a stage where any fixed proportion of the fleet could be laid down. The immediate object must be to cut down expenditure, and the Admiralty had come to the conclusion that for their purpose not more than two rigid would at present be required, one of them being of the latest type. This conclusion was reached on the assumption that the Air Ministry would encourage commercial enterprise in development and construction, and that they would in the future be responsible for development, and able to supply the Admiralty in reasonable time with airships should they be required for naval purposes.

They had a very large number of non-rigid airships, mostly designed to escort ships and overcome the submarine menace. He thought about 85 of these were now in existence, of which five were called the North Sea type, good, serviceable vessels, of considerable size. In regard to rigid, what would be available depended upon what was decided by those present, in consultation with General Sykes's department. Supposing it were decided to have all the airships now building of which there were plans, there would be a very considerable number. The R 33 and the R 34 were now in existence; the 36, 37, 38 and 39 were in various stages of completion, and the 40 was planned. That meant that if they found it worth while, with the assistance of the Government, to take up all the airships available, there would be four and possibly more to operate the service.

On behalf of all the Government Departments concerned, General Seely assured his hearers that they would give every assistance that could profitably be given to a well-organised concern which would take over those ships under the conditions which, of course, it would be necessary to impose. The conditions would be similar to those which applied to such ships as would be available in case of emergency to be handed over to the Government, under very generous terms in view of the fact that the airship business was exceedingly costly. Assistance with regard to wireless telegraphy and meteorological information would be put whole-heartedly at their disposal, and the Post Office were anxious to help in every way they could. Experimental work would be continued, and information so obtained would also be available, as well as other technical information. He could not commit the Government to any subsidy, but he pointed out the enormous advantage in having so large a quantity of material now offered to them at what would be a very low rate. As those ships were surplus to Government requirements, of course they would not attempt to charge anything like the full price for them.

With regard to sheds and personnel, General Seely said that one huge shed was more than one-third completed. Probably anyone who wished to operate would wish to do so farther south—probably at Cairo—which would seem to be a central point. This shed would take the largest airship now built, and with a little additional length would take the largest airship they could at present contemplate, which would be of 5,000,000 cubic ft. capacity. The problem of the terminal points for airship services was most intricate and difficult. He thought he was right in saying that airships had travelled about 2,000,000 miles with only one accident, through fire, involving destruction of the ship.

That was a remarkable record, and showed what could be done. Recent efforts had shown that travel in the air was an accomplished fact, and that it had a very large percentage of efficiency. The promoters would have another great advantage in the very large number of demobilised personnel which would come back to a service such as they might start. Taking it all over, he thought the prospects for starting such a service were favourable, and he earnestly hoped that meeting would bear fruit. It would be most unfortunate if this country, which managed to secure air supremacy during the War, should lose it in the days of peace. He did not think there was much likelihood of that happening, but the lighter-than-air business was one in which they wanted the help of everybody. Germany got a long way ahead of us in it before the War, and we had nearly overhauled her now in our technical knowledge. If we were to confine ourselves only to service work there would be a great risk of falling behind in the race for supremacy in lighter-than-air. The future for it was boundless. It might be many years before it reached full fruition, but there was a vast future for airship travel.

During the discussion, Sir Lionel Fletcher urged that the capital in such a firm should be all-British. He thought they should get from the Post Office information as to which route was to be developed first, and he wanted to know whether the company could rely upon the Government's support in every national way.

To this Gen. Seely replied: "Absolutely." He added that it would be an advantage if the capital were all-British, especially in view of the fact that any scheme would have to provide for ships being taken over by the Government in time of war. On the other hand, it might well be that an airship company would be in a totally different position from any other, in that it constantly had to cross friendly States, to whom it might be desirable to give a share, so he would not like to lay down now that all capital must be British. The scheme must be one which was approved, as regards its capital and directorate, by the British Government. With regard to design, he thought the divergence from our military type might become great, although it was likely to be less in the case of the airship than in the case of the aeroplane. He should think it would probably be wise for the Government to let the company design any kind of airship it wished, because, although it would not be as useful for service purposes, perhaps, as a specially designed ship, it would be more useful than no ship at all. With regard to the routes, it would be a convenience if they followed routes which would be best from an imperial and strategical point of view, but he did not think they could impose any such conditions. Probably the Indian route was the one which promised the greatest chances of success. Most of the present stations would be at their disposal, but he did not think he could say definitely now whether they would be let or sold. It was a very urgent matter on the grounds of public economy that they should come to a decision at the earliest possible moment. He therefore begged them to put themselves in communication with each other and Gen. Sykes with the least possible delay, and he hoped that within a month they would be in a position to come to the Government with a definite proposition. Air machines received from Germany would be included in the total that would be handed over for commercial purposes.

Sir Trevor Dawson (Vickers, Ltd.) approved the scheme in view of the promise of Government support, and suggested the formation of a committee of financial representatives to discuss details.

Gen. Seely said that both he and Gen. Sykes considered it was essentially a case for one big concern rather than for competing concerns.

Mr. Holt Thomas, Mr. Short (Bedford Aviation Co.), Sir Glynn West (Armstrong, Whitworth and Co., Ltd.), and others expressed approval of the scheme, and it was decided to form the committee suggested, to meet Gen. Seely, Gen. Sykes (Controller-General of Civil Aviation), Gen. Maitland, and other officials of the Air Ministry to discuss details.

Gen. Seely said he had the assurance of Lord Inverforth that red tape would not be allowed to hamper the negotiations in connection with the scheme. The matter was too important to brook delay. He was quite sure they would make the airship service of great good to the State, and they would have every possible chance to take the lead in the matter of airships, for the good of the Empire and mankind generally.

THE "LAWSON" AERIAL TRANSPORT

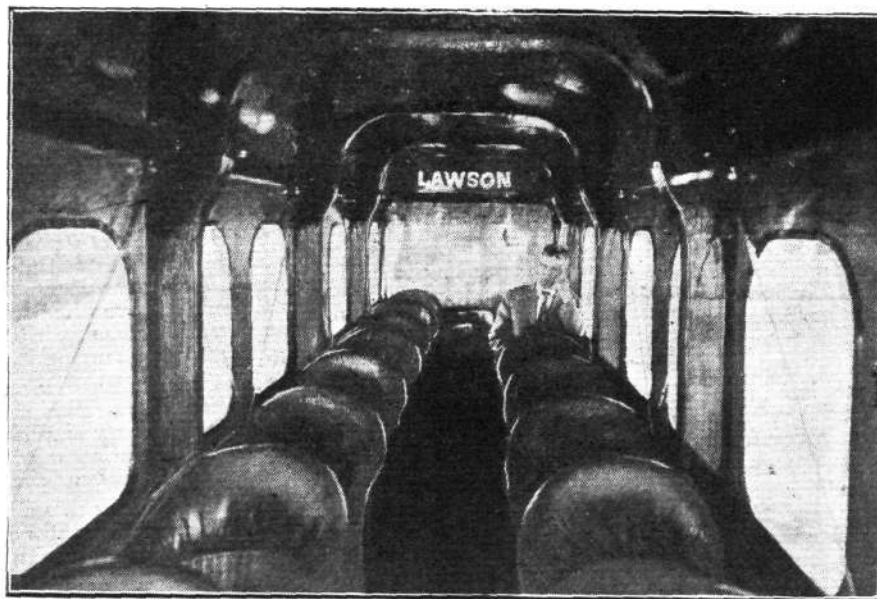
We have received the following particulars of the latest American commercial aeroplanes, the Lawson "Aerial Transports," designed by Alfred W. Lawson, of the Lawson Airline Transportation Co., Milwaukee, Wis.

The accompanying drawings are of the Type C 1, to which our description mainly refers, whilst the photographs show the Type C 2, which has just been completed and put through its trials. The C 2, which, with a large fleet of the same type, is intended for a daily service between New York and San Francisco, differs from the C 1 only in some of the dimensions and the arrangement of the air-screws. These, it will be seen, are pushers in the C 1 and tractors in the C 2. The following description of C 1, therefore, will also serve for C 2.

The whole machine has been designed from a strictly commercial point of view, and all the details of its construction and performance characteristics take into consideration the safety and comfort of the passengers. It possesses a high degree of inherent stability, a very flat gliding angle, and a relatively high factor of safety. The manoeuvrability, both in the air and on the ground, is good, all the control surfaces being of generous proportions and well balanced.

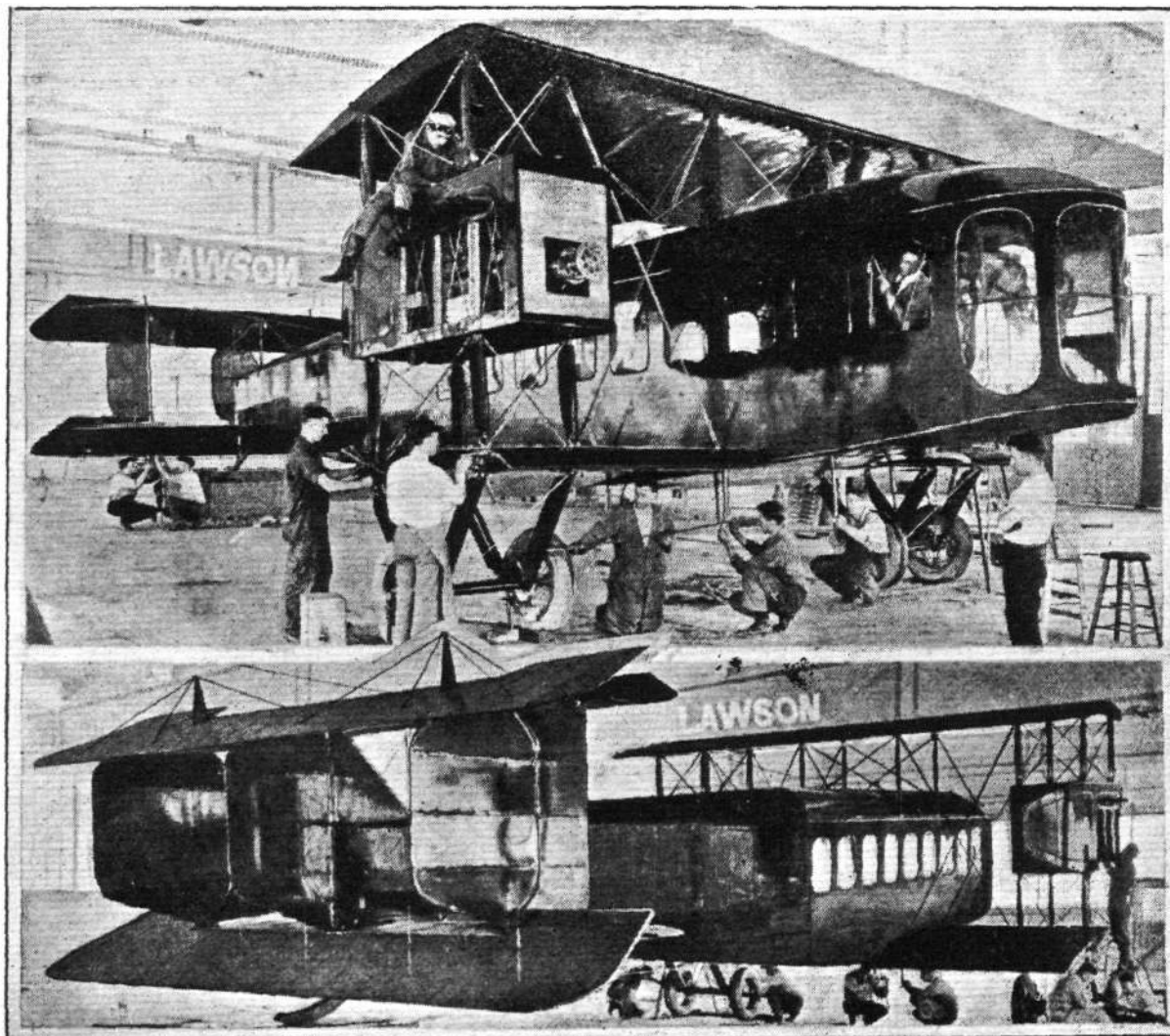
The fuselage is built to accommodate 26 passengers, the seats being placed at windows on each side of the body, as shown in the illustrations, and an aisle between the seats allows passage from the front and rear of the cabin. On the port side of the cabin, forward of the wings, is a door of ample proportions to ensure easy entrance and exit, one of the pilots' seats being made to swing back out of the way. All the seats are of wicker construction, upholstered with

green leather and provided with safety belts. They are secured to the floor, but are readily detachable, and sleeping quarters may be installed for a fewer number of passengers when cruising for considerable distances.

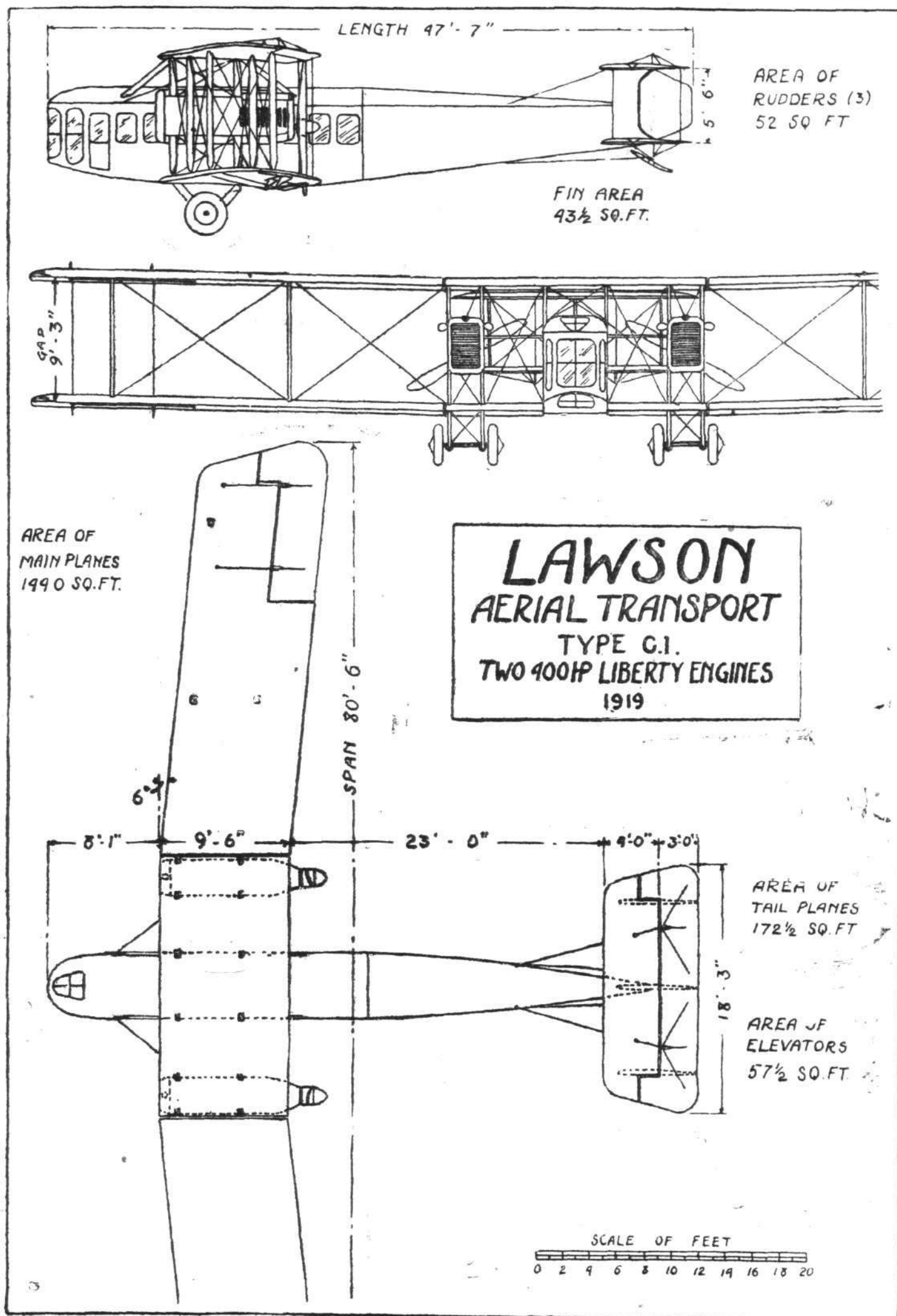


The interior of the cabin of the Lawson "Aerial Transport."

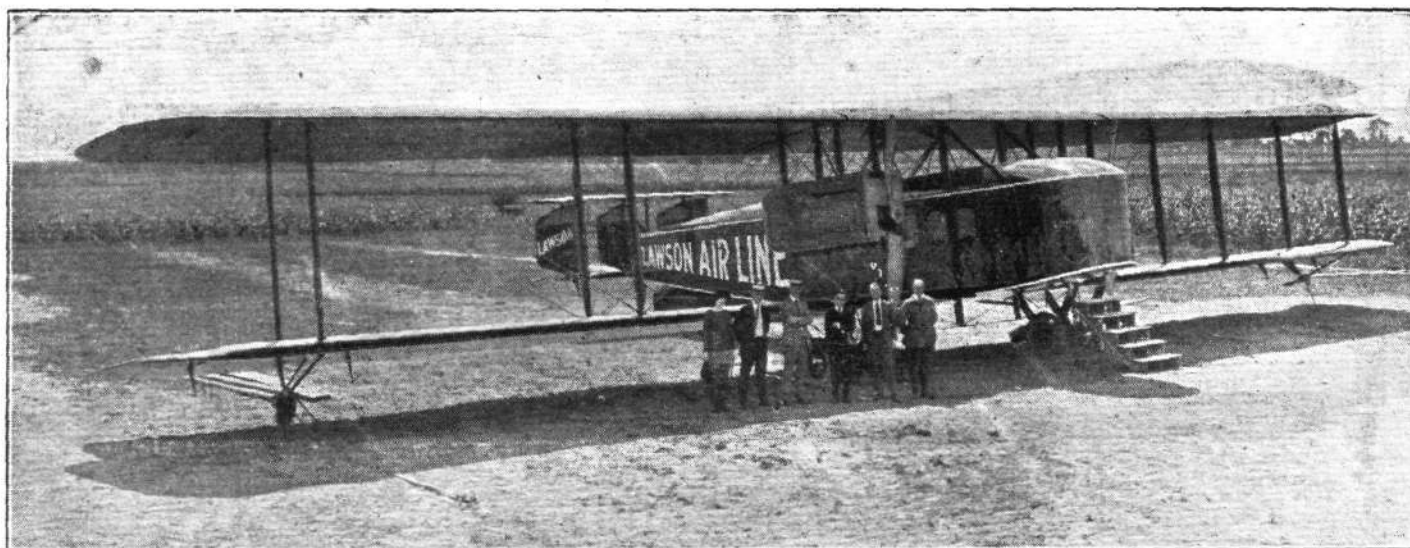
The interior of the cabin is finished in polished mahogany, and the floors are covered with carpet. The depth of the body is sufficient to allow one to stand up without stooping when walking through. The cabin is built up on box formers



Two views of the fuselage, with centre sections and engines, of the Lawson "Aerial Transport."



THE LAWSON "AERIAL TRANSPORT," TYPE C 1: Plan, front and side elevations to scale.



Three-quarter front view of the Lawson "Aerial Transport," Type C 2.

without transverse bracing, and is covered with veneer. The rear portion of the *fuselage* is of girder construction with veneer panel struts and wire bracing, and is covered with fabric. The *longerons* are of solid section ash in the cabin portion, and spruce at the rear.

The main planes, which have the U.S.A. 5 wing-section, are in seven sections, comprising one top and two bottom centre sections carrying the power plant, and the outer sections. The latter have a sweep back of 6° and a dihedral angle of 1°. The wings have a comparatively high factor of safety of 14, and are strongly braced internally and externally by double cables. The interplane struts are of deep streamline section wood. Balanced *aileron*s of wood construction are fitted to both top and bottom planes.

A large biplane tail is fitted having a cambered upper surface and a comparatively flat under surface. The *fuselage* terminates in a tubular steel stern post to which is attached the rear spar of the lower tail plane, and also the tail skid. The tail plane is adjustable. The rudders, of which there are three, and elevators are of the balanced type of wood and steel construction, mainly the latter in the case of the rudders.

Dual control is provided at the forward end of the cabin, the wheels being 18 ins. diameter, and mounted on columns carried by a transverse rocking shaft extending right across the body; the usual foot-bars operate the rudders. All control cables are duplicated. For night flying, electric lights are provided for the instrument-board, cabin interior and wings.

The landing-gear is composed of two pairs of 36 ins. by 8 ins. wheels, carried on large streamlined tubular steel struts. One pair of wheels is located under each engine in such a way as to take up evenly the landing shocks with a minimum of strain to the *fuselage* and wings.

Two Liberty engines, of 400 h.p. each, are installed, mounted on stout ash bearers, braced by steel tubes. They are completely enclosed by neat metal "bonnets," in the nose of which are mounted the radiators. Effective silencers are fitted, which add greatly to the comfort of the passengers.

The general specifications are as follow:—

Span, top and bottom	.. ..	80 ft. (95 ft. C 2)
Chord, top and bottom	.. ..	9 ft. 6 ins.
Gap	.. ..	9 ft. 3 ins.
Overall length	.. ..	47 ft. 7 ins.
Overall height	.. ..	14 ft.
Area of main planes (including		
<i>aileron</i> s)	.. ..	1,440 sq. ft.
Area of <i>aileron</i> s (4)	.. ..	168 sq. ft.
Incidence of main planes	.. ..	3°
Weight of machine fully loaded	.. ..	12,000 lbs.
Speed	....	100 m.p.h.
Climb in 10 mins.	.. ..	4,000 ft.
Ceiling	.. ..	15,000 ft.
Gliding angle	.. ..	1 in 8.
Fuel duration	.. ..	5 hours.
Range	.. ..	500 miles.

“WIRELESS” AND AIRCRAFT

THE Air Ministry makes the following announcement:—The form of licence to be granted for the use of wireless to and from aircraft, and the conditions under which such licences will be granted, are under consideration. In the meantime, pending the issue of the licence by the Postmaster-General, temporary provisional authority for the installation and use of wireless apparatus in aircraft can be obtained, in approved cases, by application to the Secretary of the Post Office.

For the present the wave length suggested for wireless telephony is 480 metres. This is the wave length which the existing Air Ministry W/T stations at present employ for work with aircraft.

For the benefit of designers and others interested, it may be said that the Postmaster-General's licence, when available, will probably contain provisions to the following effect:—

The sending apparatus installed at any aircraft station shall be constructed so as to be capable of using waves of 600 m. interrupted continuous wave and 900 m. continuous wave; such of the following wave lengths, namely, 220, 300, 450, and 800 m. interrupted continuous wave, and 200-550 m., 650-950 m., 2,000-3,000 m. continuous wave, may also be used for transmission as are authorised in writing by the Postmaster-General.

The use of the wave of 600 m. (hereinafter referred to as the "aircraft-ship" wave) shall be confined to the use of the system known as "Interrupted Undamped Wave or Tonic Train, or I.C.W.," and the use of 900 m. (hereinafter referred to as the "Aircraft Normal Wave,") shall be used only for continuous damped waves or wireless telephony.

Should an aircraft station be also fitted with a supplementary installation on long continuous waves, such installation shall be so constructed as to be capable of using the wave length of 2,400 m.

The range of wave lengths for which the receiving apparatus may be constructed is not limited, but the apparatus must be capable of receiving on 600 m. and 900 m., and on 2,400 m. when a transmitter working on this latter wave length is installed; it must also be made to embrace any other wave length on which a transmitter installed has been authorised to work.

The input of power to the licensed apparatus measured at the terminals of the power generator or battery shall not exceed 100 watts, provided always that when vacuum valves, having heated filaments, constitute a part of the sending or receiving apparatus, or both, the power employed for heating the said filaments shall be excluded in computing the said maximum input.

THE JACQUES SCHNEIDER CUP RACE

By the time this week's issue of *FLIGHT* is distributed, the seaplane race for the Jacques Schneider Cup and Prize will, barring accidents, have been flown over a triangular course, having for its starting and finishing point Bournemouth pier, and with turning points at Swanage and Christchurch respectively. Or, more correctly speaking, the two turning points will be in Swanage Bay and outside Hengistbury

One of the machines at least, the Sopwith, is more lightly loaded than any seaplane we have ever heard of, less than 5 lbs./h.p., and as the loading per h.p. is one of the most important factors as regards performance, this machine should put up a rather startling speed. In fact, we doubt if it will be possible to fly her "all out" without her climbing.



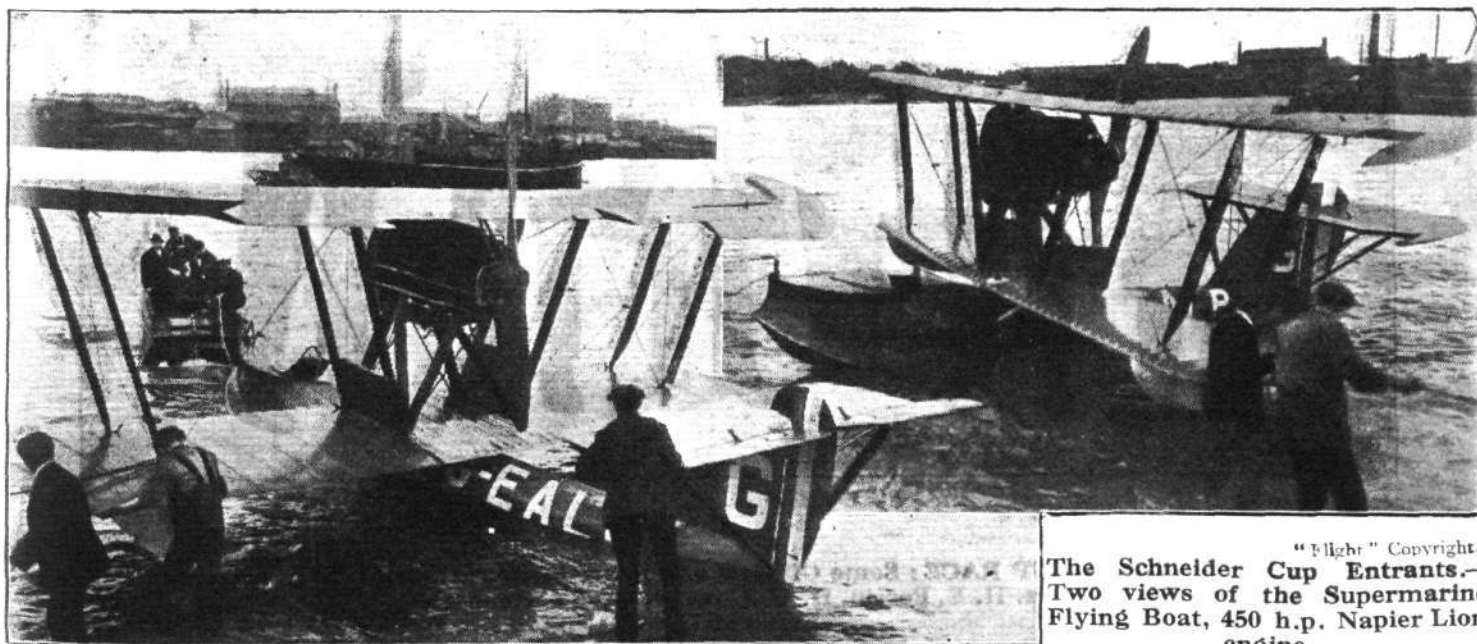
THE SCHNEIDER CUP RACE.—The Fairey Seaplane, 450 h.p. Napier Lion engine. This machine is similar to the type III, but has had its wing area reduced.

"Flight" Copyright

Head. The total distance to be flown is approximately 200 miles, and as the course is 20 miles competitors will make 10 laps of the course, with two alightings on the sea during the first lap. As the majority of the machines entered are extremely fast, some of them will probably have a maximum speed of somewhere in the neighbourhood of 150 m.p.h., the fastest machine will probably cover the whole distance of 200 miles in about 1½ hours, allowing for some slight loss of time at the turning points. For seaplanes this speed is a very considerable increase on what is usually attained, and the race should, therefore, provide some exciting moments.

Some of the other machines also are very fast and, although they may actually be a little slower than the Sopwith as regards speed, they may possess other qualities which will help to even the score and provide some really good racing.

In our last issue we published scale drawings and photographs of the Sopwith and Avro machines, and photographs of the Fairey Seaplane and "Savoia" flying boat. At the time of going to press no particulars are available of the French entrants—two Nieuports and one Spad. We are, however, in a position to publish photographs of the actual Fairey Racer—which, it will be seen, is of very much shortened span



"Flight" Copyright.
The Schneider Cup Entrants.—Two views of the Supermarine Flying Boat, 450 h.p. Napier Lion engine.



Schneider Cup Entrants in dock. — The Avro Seaplane having her float repaired. Note the large fin and balanced rudder which have been substituted for the original ones.

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having only one pair of struts on each side—and of the Supermarine Flying Boat.

The eliminating trials were to have been held at Cowes on Wednesday of last week, but, owing to various slight mishaps, these did not take place. The Sopwith, in alighting, damaged a float and was only beached with difficulty. However, the damage is only slight, and it will be a simple matter to repair the damaged float or to substitute a new one in time for the race.

The little Avro Seaplane also damaged one of her floats, by hitting some floating object we understand, and has had to go to dry dock. She is shown in one of our photographs undergoing repairs at the Hamble works of Messrs. A. V. Roe. It will be noticed that a much larger tail fin, and also

a larger, balanced, rudder, has been fitted since the publication of the scale drawings in our last issue. Otherwise little or no alteration has taken place.

The Fairey seaplane, although similar in general design to the one illustrated by a recent photograph in *FLIGHT*, which was sent to us by the Fairey Co. as the machine entered by them, has had her wings cut down very much, only one pair of struts being now fitted on each side. This should result in a very considerable increase in speed, and as the machine has a 450 h.p. Napier-Lion engine she should prove very fast.

The little flying boat entered by the Supermarine firm also promises a good turn of speed. As the accompanying photographs show, she is of the pusher type, with the 450 h.p.



"Flight" Copyright

THE JACQUES SCHNEIDER CUP RACE: Some Officials and a competitor at Messrs. S. E. Saunders' sheds at Cowes. From left to right Messrs. H. E. Perrin, H. G. Hawker, S. E. Saunders, Maj. Mayo, Alec Ogilvie and Frank McClean.

Napier Lion engine mounted fairly high in the gap. Apart from the centre section struts there is only one pair of struts on each side, and these are sloped outwards on account of the slightly greater span of the top plane.

Just as we are going to press we learn that the officials of the Royal Aero Club have decided that the Avro must stand down, as only three machines from each country are allowed to take part in the race.

Next week we hope to be able to publish a full account of the race.

Cowes, Tuesday, Sept. 9.

By Our Special Commissioner.

As a result of an elimination trial between the Avro-Puma seaplane and the Supermarine flying-boat on Monday, the former has had to "stand down," and the Supermarine has been selected as the third machine to represent this country in the Schneider International Seaplane Race. Purely from the point of view of speed, the Avro machine was, if anything, the faster, but the Supermarine boat gained on points chiefly as regards getting off and alighting. Today the Supermarine boat was out for a spin over Southampton Water and Calshot, and appeared to be tremendously fast. The Sopwith seaplane, 450 h.p. Cosmos "Jupiter," has also been flying, and is undoubtedly the fastest of the machines entered. The Fairey seaplane is all ready for tomorrow's race.

The Italian representative, the "Savoia" flying boat, with 250 h.p. Isotta-Fraschini engine, is also at Cowes. She is similar to the standard S 13, except that she is a single-seater, and the wing area has been reduced, there being now only one pair of struts on each side. The boat is flat-sided and with a single step. The boat bottom is somewhat different from that of our boats in that it is slightly concave just in front of the step instead of having a Vee bottom.

The I.F. engine is a very clean-looking job, and it has an immensely healthy roar. This machine also is very fast, and when taxiing along the sea appears to make far less spray than our boats, probably on account of the hollow bottom and flat sides.

The French Spad is a monocoque body tractor seaplane,

with two long floats. These have Vee bottoms both in front of and behind the step. The under-carriage strutting is rather unusual, and, although apparently very strong, could probably be simplified with advantage. This machine is rather unlike the usual Spad land machine, having a single I-strut on each side, while its top plane has a pronounced sweep back, the bottom plane being straight. The engine is a 300 h.p. Hispano-Suiza, with the radiator mounted in the nose.

The Nieuports have had very hard luck. Both the original machines were crashed during trial flights over the Seine, and a spare machine, piloted by Casale, actually made the trip from France to Cowes in 2½ hours, only to come to grief by striking a buoy outside Cowes. The floats were smashed, and the machine was standing with its tail in the air and the engine submerged when Lieut. Casale was picked up.

However, the machine was salvaged, and is now at Saunders' sheds, having a new engine and floats fitted, while the Saunders works are busy rebuilding the wings. Everybody is working like Trojans, Saunders' men no less than the Nieuport mechanics, and it is confidently expected that the Nieuport will be ready tomorrow in time for the race.

This machine also has a monocoque body, with fin and tail plane built integral. It has floats very similar to those of the Spad. The 300 h.p. Hispano-Suiza engine is all but streamlined off by the nose of the body, the two radiators, of very unusual design, looking for all the world like lobster pots, being mounted on the undercarriage struts, below the body. The Nieuport looks speedy, but I have not seen her in the air yet.

Another Nieuport, piloted by Malard, is now rumoured to be on its way from France, but at the time of writing it has not turned up.

Tonight the Saunders sheds at Cowes are the scene of great activity, and everybody is full of praise of the sporting way in which Mr. Saunders has placed not only his sheds, but his workshops at the disposal of competitors. All manner of adjustments and repairs can be, and are being, carried out which would have been next to impossible under less favourable conditions.

Everything points to a very good race tomorrow, and the weather is fine, and looks like remaining so for a day or two.

COMMERCIAL AIR-TRANSPORT

BREAN DOWN, SOMERSET

RECENTLY in spite of the weather conditions often being anything but pleasant, a large number of passengers have been taken up—the majority being ladies—at the Brean Down Aerodrome, near Burnham-on-Sea, where the Warwick Aviation Co. have two Airco 6 machines in use. The low fares of 10s. 6d. and 21s. and the free flight system have attracted many visitors from Weston-super-Mare, Burnham, and the surrounding country. The pilots, Lieut. W. A. Warwick, Lieut. H. A. Yeo, and Lieut. F. V. Webb, late of the R.A.F., have each seen extensive active service in France. Up to the present no stunting has been carried out, but it is hoped that another machine will be available shortly for this purpose.

BRIGHTON

DURING the week ending September 6, the Avro machines made 50 flights from their aerodrome and 100 passengers were carried. The weather was very indifferent all the week, and it was impossible to fly for some part of every day. On Saturday afternoon passengers were taken up at Chichester, and a cross-country trip from Brighton to Chichester and return with two passengers was made.

HOUNSLOW

DURING the week the Avros made 85 flights and took up 149 passengers. Cross-country flights made included one to Margate, one to Weston-super-Mare, two to Brooklands and one to Woolwich and return.

On the 8th inst., an officer of the Guards chartered an Avro at Hounslow and flew to Hythe, starting at 7 a.m., to be in time for a Musketry Course which commenced there that morning.

The Avro Co. is not running any regular service to the Continent, but in its capacity as "Air Taxi" is always ready to take passengers there when they want to go. Its first flight to Paris was made on Saturday, 6th inst., when the Avro Limousine, piloted by Capt. R. T. Fagan, D.F.C., left Houn-

slow at 4.50 a.m. carrying two Norwegian gentlemen. A non-stop flight was made and Le Bourget was reached at 7.35 a.m.—an excellent flight of 2 hours 45 mins.

PAIGNTON

Although flying was possible only on two days last week, the Avro seaplanes made 46 flights, and carried 76 passengers. Cross-country flights were made to Teignmouth and Babbacombe. This week the Avros have had an exceptionally busy time. On Monday, Tuesday, and Wednesday, special trips were made over H.M.S. Queen Elizabeth and H.M.S. Lion, moored in Torbay. On the first day 70 passengers were taken up, and at least 50 on each of the other days.

MARGATE.

FLYING on an Avro at Margate, under the supervision of Capt. Duncan Davis, is quite the most popular and delightful sport of the season, and 273 passengers have thoroughly enjoyed their air trips this past week. Many enthusiasts were over 60 years of age, and several under 6. There were also a number of celebrities, including a well-known M.P. and his son. Tea is served on the aerodrome, which makes an afternoon at Manston a very pleasant affair.

At Herne Bay, there are hundreds of spectators, and always many passengers waiting their turn. In this coming week, flights are being given around the Fleet for £3, and already many trips have been booked.

WINDERMERE.

In the last two weeks the Avro seaplanes at Windermere have been chiefly engaged with carrying the *Daily News* to Douglas. They completed their contract last Wednesday. After delivering the papers to Douglas for this last time, Capt. Pixton filled up with petrol and flew over to Port Erin and took up a few passengers there. Unfortunately, he could only manage a few, owing to lack of petrol, and being short-handed, with no local organisation. So he had to disappoint a great many. One passenger at Port Erin booked a passage to Windermere, calling in at Douglas on the way.

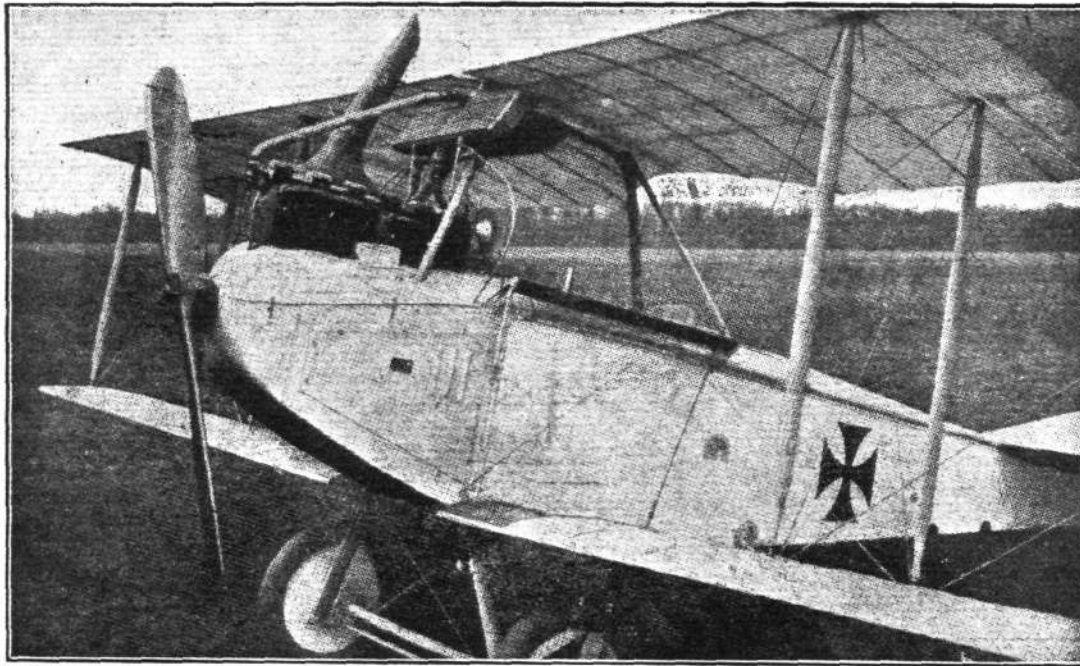
AVIATIK "MILESTONES"

Of the German aircraft firms which were in existence before the War, one of the best known and most important was the Aviatik (Automobil-u. Aviatik A.G.), whose works were originally at Mülhausen, Alsace. Quite early in the War, however, the proximity of the works to the front made it necessary to transfer them to a safer locality. This was hurriedly done, under cover of darkness it is alleged, and works were established at Freiburg im Breisgau. The demands for output soon rendered these works too small, and a large factory was established at Leipzig-Heiterblick, which is at the present time the main Aviatik factory. Work

was commenced at this factory in 1916, and in addition the Grade works at Bork i. d. Mark, near Berlin, were purchased by the Aviatik firm, who enlarged them considerably and established a flying school there. The Aviatik firm intends to remain in the aircraft industry after the War, and in view of this fact, as well as on account of the amount of work done by this firm during the War, a few brief notes on the various Aviatik types, based on an article published in *Flugsport*, may not be without interest.

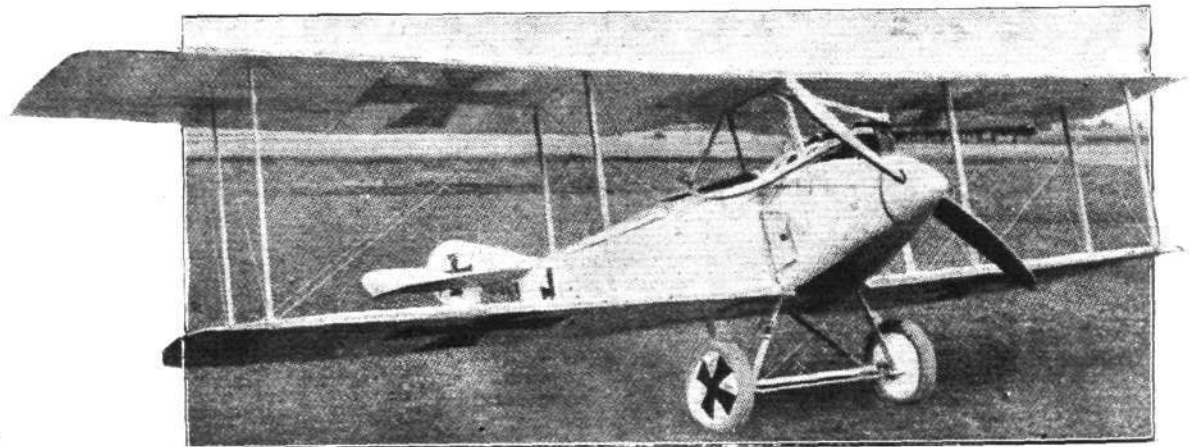
The Aviatik, Type C I

This machine, which was built during 1914-1915, had a



The Aviatik,
Type C I.

The Aviatik,
Type C III.



The Aviatik,
Type C V:
Note the un-
usual wing
bracing and
the dropped
centre sec-
tion.





The Aviatik,
Type C VIII.

160 h.p. Mercédès engine, and the radiator mounted on the front struts of the *cabane*. The gunner occupied the front seat, two straight gun rails being mounted on the sides of the *fuselage*. The machine had a speed of 142 km./hour.

The Aviatik, Type C III

was built in 1916, and also had a 160 h.p. Mercédès engine.

better streamline shape, and last, but not least, by employing a different wing section. The next machine in the series which is of interest is

The Aviatik, Type C V

This machine, which was constructed in 1917, had an Argus engine of 180 h.p. The type C V departed from usual

The Aviatik,
Type C IX:
This machine
has a four-bladed
airscrew.

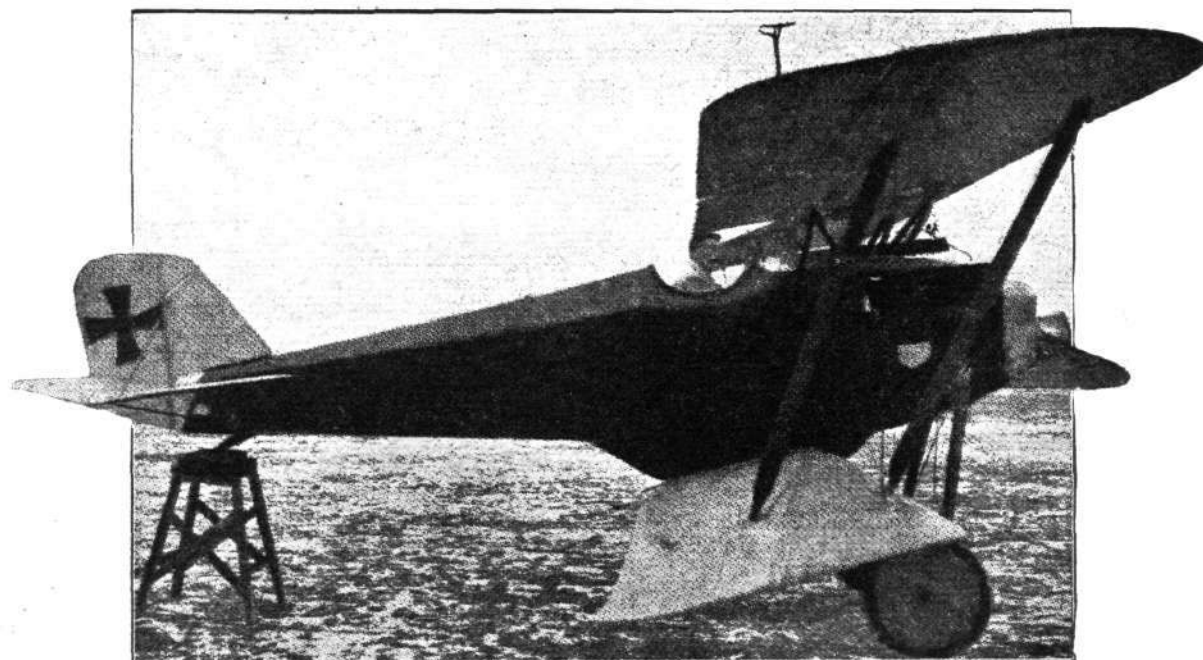


It was designed to meet the demand for better performance, and although the engine remained the same, the speed of this type was increased from 142 to 160 km./hour. This was accomplished mainly by a general "cleaning up," such as placing the radiator in the top plane, giving the body a

practice in several respects. Thus the wing bracing was unusual in that no lift-wires were employed. As the accompanying illustration shows, the outer pair of inter-plane struts were arranged in the form of a Vee, the bottom plane being of smaller chord than the top. The innermost pair



The Aviatik,
Type D II.



The Aviatik,
Type D III

of struts ran from the upper ends of the next pair to points near the bottom of the fuselage, while a third strut sloped aft from the rear strut and was anchored at its lower end to the fuselage some distance aft. Another feature of this type was that the centre section of the top plane was dropped, in a manner not unlike that employed on the latest Boulton and Paul "Bourges." The object of this arrangement undoubtedly was to provide a better view and a freer field of fire for the gunner. For some reason or other the type was

keel was provided, growing out of the bottom of the fuselage and to this were attached the two halves of the bottom plane. The fuselage was covered with ply-wood, and was of good streamline form. The gun-ring in the rear cockpit was accommodated in a coaming of three-ply, nicely rounded off, as will be seen from the photograph. The centre section struts were of N formation, and were raked outwards. A similar pair of struts provided diagonal bracing for the root attachment of the lower plane to the keel referred to above.



The Aviatik,
Type D VII

not a success, and was not, we believe, built in large quantities. No figures of performance are available.

The Aviatik, Type C VIII

This machine was also built in 1917. It had a 160 h.p. Mercedes engine, and the radiator placed in front of the leading edge of the top plane. To reduce resistance, and thus increase speed, only one pair of inter-plane struts was fitted on each side, while the body was kept of the smallest possible cross section. In order to provide sufficient gap for aerodynamical efficiency, which was not possible with direct attachment of the lower plane to the body, a form of

The Aviatik, Type C IX

In 1918 a somewhat different type, the C IX, was produced. This had a 200 h.p. Benz engine, and the radiator was placed in the nose of the fuselage, motor car fashion. The lower plane, which was of smaller chord than the top one, ran underneath the fuselage, much after the manner of the Bristol Fighter, which may quite possibly have inspired the Aviatik designer to adopt this feature. The fin and tail planes, three-ply covered, "grow" out of the body, while the rudder is fabric covered. There is a small fin underneath the fuselage, containing the tail skid.



The Aviatik,
Type Go. G VII



The Aviatik, Type R.

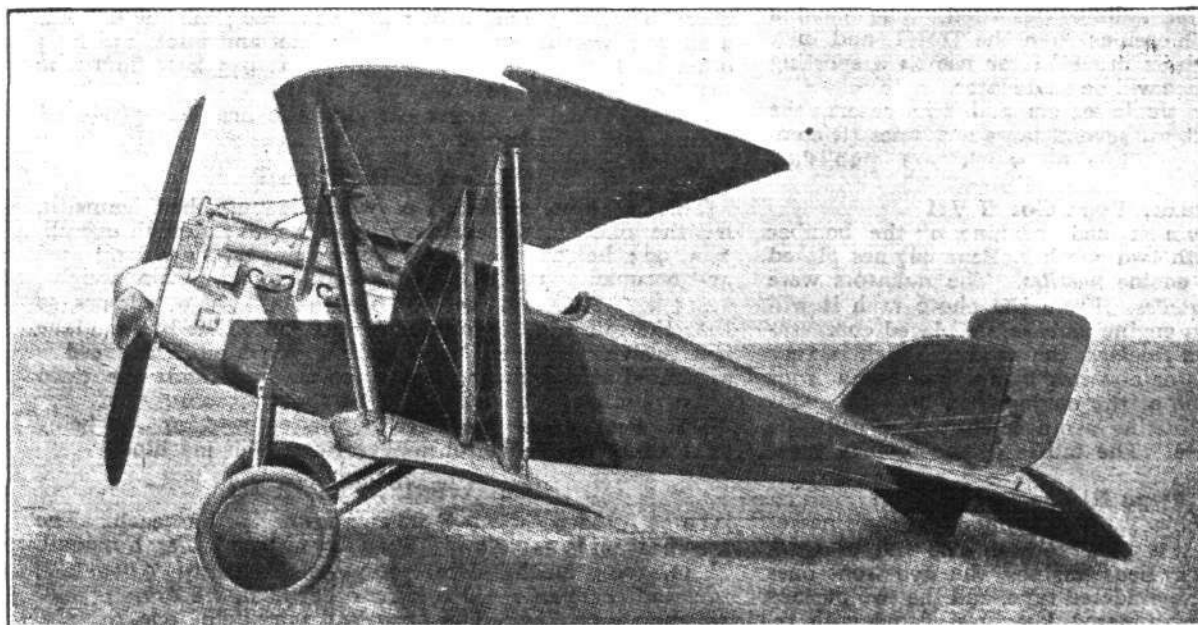
The foregoing types represent the development in the two-seater class. The Aviatik firm has, however, also produced some single-seaters, known in Germany as the D class. Of these mention may be made of a few.

The Aviatik, Type D II

This machine, which was built in 1916, is similar in general lay-out to the Albatross and other scouts. It had a 160 h.p.

The Aviatik, Type D III

In 1918 another single-seater type was brought out. This machine, which had the series number D III, was fitted with a Vee type 195 h.p. eight-cylindrical high-speed Benz engine. As other machines of the D type it had one pair of struts aside, and it was similar to the type C VIII, in that it had a keel structure projecting down from the bottom of the fuselage, to which was attached the bottom plane. The



The Aviatik,
 Type D VII,
 Sporting
 machine.

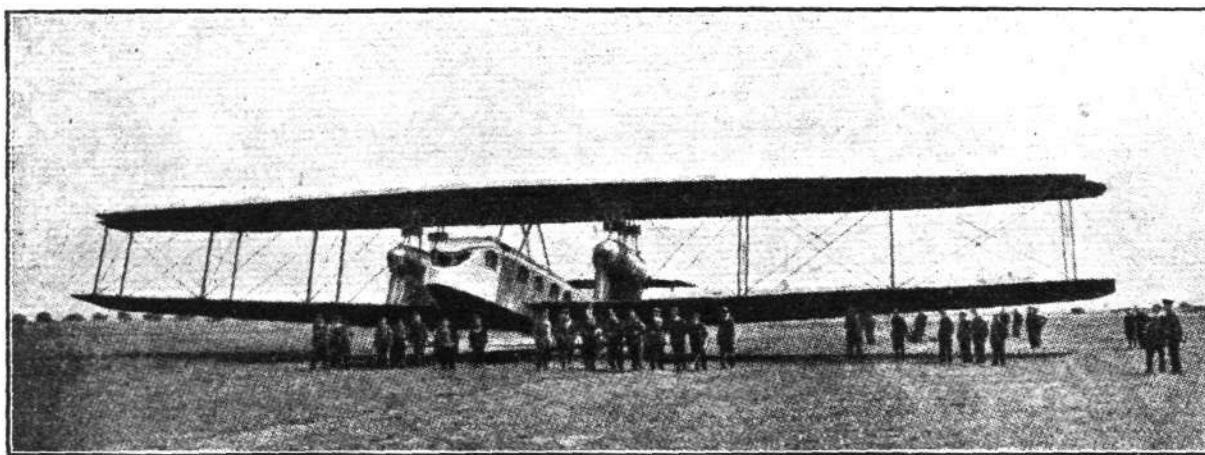
Mercedes engine, and the radiator was placed in the centre section of the top plane. Although the body construction was the usual German one of a light framework covered with ply-wood, steel was used for the inter-plane and centre-section struts, and also for the undercarriage and engine-bearers. The pilot's seat was carried on a rearward extension of the channel section steel engine-bearers.

planes were heavily staggered, so as to give the pilot a better view. The radiator was placed in the top plane.

As in the case of our own machines, there came a time when engines became of such increased size and the evolutions to be carried out during fights in the air of so strenuous a nature that the single-pair-of-struts-aside type of single-seater was no longer equal to it. Consequently, it became



The Aviatik
 Limousine,
 Type F.



The Aviatik passenger-carrier, Type R III

usual to fit two pairs of struts, and generally to strengthen-up this type of machine. The Aviatik firm did this in their next single-seater :

The Aviatik, Type D VII

which was built in 1918. The engine fitted in this type was also a 195 h.p. Benz eight-cylindrical Vee, driving a four-bladed airscrew through reduction gearing. Probably owing to the fact that the engine was of the Vee type, and that, therefore, it was difficult in any case to provide a pointed nose to the machine, a front radiator was fitted. The machine is of slightly greater dimensions than the D III, and in a somewhat modified form is intended for use as a sporting biplane, to which reference will be made later.

In addition to their single-seaters and two-seaters, the Aviatik firm have also built several large machines (*Riesenflugzeug*), illustrations of three of which are published herewith.

The Aviatik, Type Go. G VII

built in 1918, is a twin-engined machine of the bomber type. It was fitted with two 200 h.p. Benz engines placed on the wings in short engine nacelles. The radiators were in the nose of these nacelles. From the photograph it will be noticed that the two engine nacelles are placed comparatively close to the main fuselage, the nose of which is very short, allowing the tractor airscrew blades to pass in front of it. This arrangement of the engines has brought about a somewhat unusual strutting arrangement, as regards the inner cellule, at any rate. The tail is of the biplane type, with three rudders.

The Aviatik, Type R (*Riesenflugzeug*)

was a four-engined machine, following more on the lines of the Staaken type. It was built towards the end of 1918, and was fitted with four Benz engines, the two front ones being of the 200 h.p. six-cylindrical type, and the two pushers of the 500 h.p. twelve-cylindrical Vee type, fitted with reduction gearing. As will be seen from the photograph, this machine was of very large dimensions, with its engines placed end to end in nacelles between the planes. It had a biplane tail.

The Aviatik Commercial Machines

For post-War commercial use the Aviatik firm has several types in course of construction. These include machines of 200, 350, 1,000, and 1,500 h.p., the latter types carrying from 18 to 26 passengers.

The Aviatik Sporting Machine

This, as already mentioned, is a development of the Type D VII. It has a Benz engine (eight-cylindrical Vee type) of 240 h.p., and is stated to develop a speed of 192 km./hour at 3,000 m. It is claimed to climb to 6,000 m. in 24 mins., and to have a ceiling of about 7,400 m. The machine, as shown in the accompanying illustration, has a four-bladed airscrew, probably driven through reduction gearing. The following is the specification of the Aviatik sporting machine : Span, 9 m. 66; length overall, 6 m. 100; height overall, 2 m. 50; weight, empty, 745 kg.; fuel and pilot, 150 kg.; other load, 50 kg.; total weight about 945 kg. Sufficient fuel for 1½ hours. (About 280-300 km.)

For mail and passenger carrying the firm has produced a limousine to be known as

The Aviatik, Type F

This machine, a sketch of which is published herewith, has the following dimensions : Span, 15 m.; Length overall, 7 m. 90; height, 3 m. 100; weight empty, 1,050 kg.; fuel and occupants, 315 kg.; other load, 250 kg.; total weight, 1,615 kg. Sufficient fuel is carried for a flight of 3 hours, so that the range is approximately 525 km. The power plant is a twelve-cylindrical Vee engine of 300 h.p. The speed is estimated at 175 km./hour at 2,000 m., and climb the 5,000 m. in 35 mins. The ceiling will be about 6,500 m.

For Peace-time passenger-carrying the Giant is being adapted as a passenger or mail carrier. This machine,

The Aviatik, Type R III

is to be fitted with four Benz engines of 250 h.p. each. The specification is as follows : Span, 43 m. 500; length overall, 22 m. 500; height, 6 m. 500; weight empty, 9,000 kg.; fuel and occupants, 1,800 kg.; other load, 1,800 kg.; total weight, 12,600 kg. The crew will consist of one captain, two pilots, two engineers, and one steward. The useful load may consist of 18 passengers with their luggage or of 1,800 kg. of goods. Fuel is carried for a seven-hours flight (about 875 km.). The speed is expected to be about 125 km./hour at 2,500 m. A climb of 3,500 m. in 1 hour 40 mins. is anticipated, and the ceiling has been estimated at about 4,000 m. All the comfort to which passengers of a railway-coach are accustomed to will be provided. A diagram of the cabin arrangement is published herewith, and shows the seating, etc.

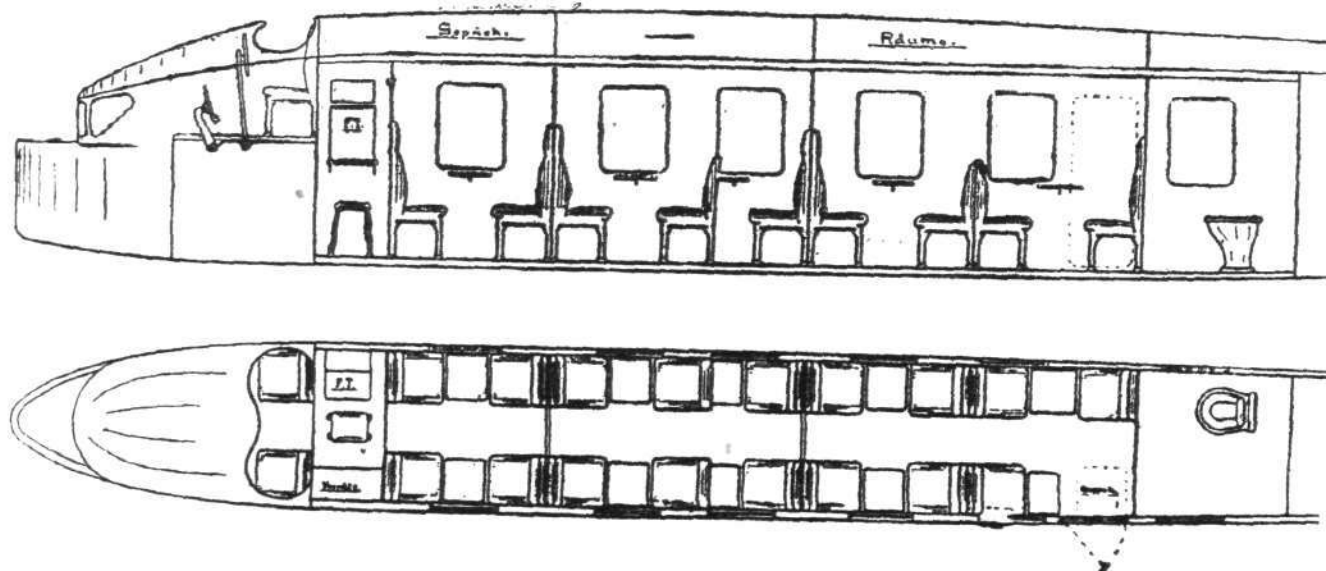


Diagram of passenger accommodation, etc., in the Aviatik, Type R III

AIRISMS FROM THE FOUR WINDS

WHAT a distributing centre for up-to-date information, 186, Fleet Street, must be. Starting from that address for London *via* Dundee, "our own (London) correspondent" of the *Advertiser* of the city of cakes tells us that "the Board of Trade Committee is at present considering a comprehensive scheme for the establishment this coming winter of an extensive landing ground for aircraft in the heart of London. This aerodrome, the only one of its kind in the world, will be situated on the roof of a large central clearing house in Clerkenwell, which is now being built for London's goods traffic. Sheltered on all sides by tall buildings, equipped with powerful searchlights, and covering some quarter mile square of level surface, aircraft will be able to depart for and arrive from all parts of the world by night and by day, and in all sorts of weather, in safety The new scheme will fulfil a long-felt want, and will entail the saving of an hour on every flight made to and from the Metropolis. Several of the more important aircraft companies will share in the use of the new aerodrome, and steps are to be taken to amend the existing rule of the Air Ministry that aircraft must not fly over London at a low altitude." We are indeed delighted to hear of this enterprise, which looks like going one better even than the suggestion of roofing in the Green Park for a similar purpose. Unfortunately the "affaire" is merely the putting into words a vision of the future, *à la* Gattie, as an additional inducement to the Government to put into operation Mr. A. W. Gattie's great and admirable clearing house scheme. This, irrespective of the utter inadequacy of the 'drome space which the roof of Mr. Gattie's building would afford, according to the latter's own figures. No, we fancy "our own correspondent" will have to hedge presently over that "this coming winter" creation of his. Gracious to goodness, but such a scheme as Gattie's if successful, would knock out half to threequarters of the Geddes bureaucrats which are now in the process of creation!

FOLLOWING is a letter from Sir Charles Bright on "Airship Economy" which he has sent to the Press under date September 2:—

"Today's announcement that the Air Ministry have decided to stop airship construction will come as a shock to all who rightly recognise (1) that the Air Force is going to be the most essential weapon of national defence, and (2) that airships are capable of becoming a highly efficient factor in transport and communication betwixt the Mother Country and the outlying portions of the Empire. The same applies, of course, to international

trade. Let us, by all means, work for a closely restricted expenditure in directions where, owing to bad organisation expensive contracts, and much overlapping between Departments, money has been ill-spent—literally poured out indeed. But if our economy is either at the cost of Imperial security or acting as a check to inter-Imperial commerce, our position will surely become worse than ever."

TRACKING Sinn Fein murderers by aeroplane is the latest airy item. Following the murder of the military at Fermoy by the Sinn Feiners, a hunt by car and otherwise for the criminals was at once set up, but the murderers having got through on their motor car, accomplices blocked the way for the authorities' vehicles by means of felled trees across the road. Delay thus gained enabled, at least temporarily, the fugitives to escape. Under the circumstances aeroplanes from the flying station were then sent up, 18 machines, it being stated, taking up the chase. Unfortunately these were brought into action a bit late, and it is hardly surprising to learn that they failed to find any trace of the fleeing motor cars.

Some R.A.F. Impressions



Squadron-Leader McCrindle, M.C., of the H.P. Communication Squadron, who, at the time of the Peace Conference, flew many celebrities across to Versailles.

SYNCHRONISING with our aircraft downing policy, from Germany it is announced that the Prussian Ministry of Trade has sanctioned the formation of a limited liability company for air traffic in Frankfurt-on-the-Main, with a share capital of 15,000,000 marks (nominally £750,000). The company will begin with a post and passenger service of some 200 aeroplanes, which will fly between Cologne and Frankfurt, Stuttgart, Basel, Berlin, Breslau and Hamburg.

A COMPLAINT from Bradford in connection with air defence waste will take a lot of explaining away. It is stated that a station established in that city at Beacon Hill during the Zeppelin raids still exists, with an anti-aircraft gun mounted and 17 men in charge. It is hardly surprising to hear that this is denounced as wasteful extravagance. It is now announced, after a public outburst of indignation, that steps are being taken to dismantle the station and release the men. But what about it?

At Dover last Sunday night a novel open-air service was held within the walls of the Wesley Memorial Hall, which was one of the "hits" of the bombing season, it being unroofed and blown to pieces by German eggs, well and truly laid. It has since been cleared inside and rendered safe, but it is still open to the sky.

FROM Maj. C. H. R. Johnston (late R.A.F.) the follow-

ing interesting communication from Barkarby, Sweden, is to hand:—

"Your numerous readers may perhaps be interested to have some news of aviation in this country, and I, therefore, write of what we and others are doing. I came out here in June with two 110 Le Rhône Avros and an 80 Renault D.H. 6, to do anything whereby money might be made. So far the success of the expedition has far exceeded our expectations, and we are now enlarging the show considerably and importing more machines from England, including a Rolls seaplane and an A.W. We have formed the P.O. Flygkompani in conjunction with Lieut. Herrström of the Swedish Flying Corps Reserve, and Capt. Saunders, late of the R.N.A.S., is the other pilot. Scandinavia in general and Sweden in particular is taking very kindly to aviation,

The climate has been very good for flying during June, July and this month, never any fog and very little rain. Unfortunately, the almost total absence of good fields for forced landings and the large amount of forest and water everywhere, makes it very important to be able to rely implicitly on one's engine. Our 110 Le Rhône's are standing up to the work well, but one cannot get any spares in the country, and when wired from England often take several weeks to arrive. It is very important for anybody bringing machines here to be very certain that they are complete in every respect to the last split pin and nut, as everything missing has to be made. A turnbuckle, for instance, costs 18 kr.—£1—to make in Stockholm. If anyone contemplating flying in this country is unfortunate enough to acquire his machines from the same source as we obtained ours, he may find, as we did, the following

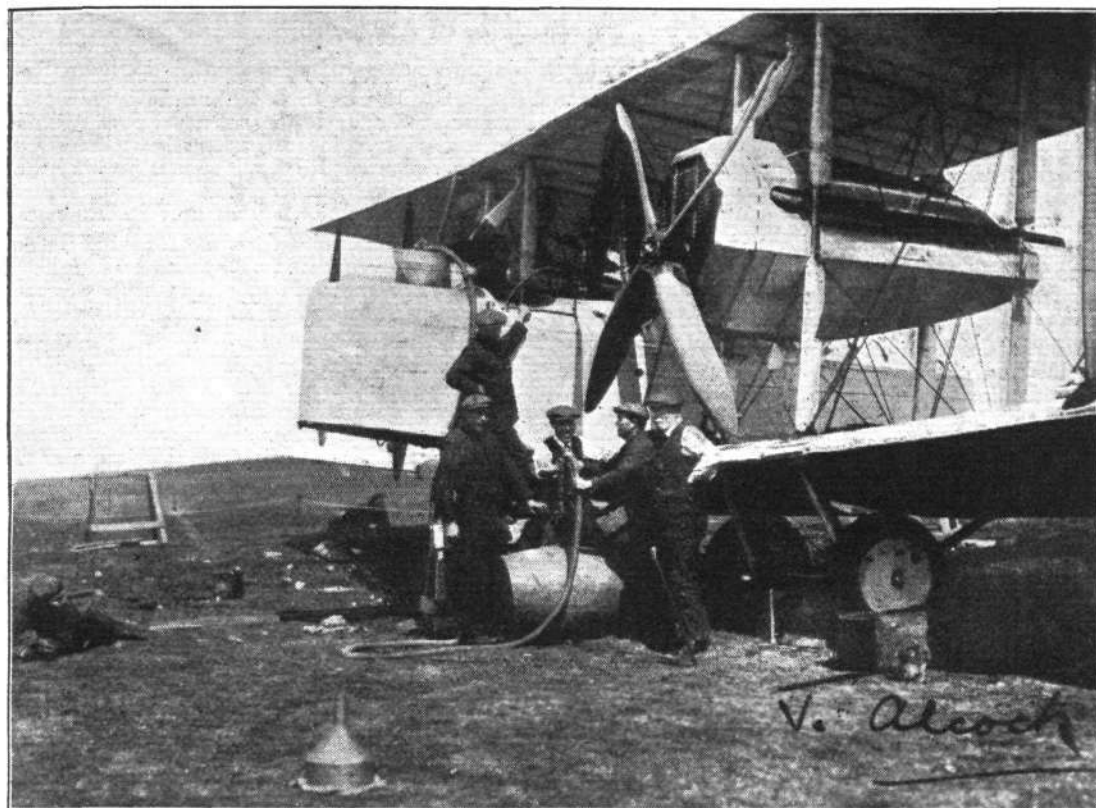


"Flight" Copyright

Bournemouth, the scene of the competition for the Schneider seaplane race on Wednesday last, as seen from 2,000 ft.

and it behoves English aircraft firms not wishing to have the Scandinavian market captured by Germany and Austria to wake up to the great possibilities of civil aviation here. So far our work has been to fly to the larger towns and cities where all advertising is done for us by the newspapers, and give demonstrations of War flying and stunting, and then take up passengers, enclosing the flying field and charging for admission, and also, of course, for the passenger flights. The results, as previously stated, have been more than satisfactory, our average daily takings since we began work being just over 1,000 kr., which is about £55 to £60. Unlike England, there are no vexatious restrictions on civilian aviation, and apart from one inspection of the machine before beginning work and the medical examination of the pilot, one is not interfered with as long as no dangerous flying is indulged in.

articles, extracted from a very long list, deficient:—No driving wheel for magneto, no carburettor on engine, planes of a different type to fuselage, with, therefore, wrong length inter-plane and drift wires and turnbuckles with one end larger than the other, no oil or petrol pipes either in machine or engine, machine minus Class I modifications, five ribs broken in tail plane owing to bad packing in crate, literally hundreds of nuts, bolts, pins and washers missing. This is bad enough, but when, to crown all, one assembles an engine straight from its packing case in a machine, and on turning it round hears a rattling, and then discovers when the nose-plate is removed that someone has kindly left a 2-in. brass wood screw in the engine, then one almost believes that someone has a grudge against Sweden. I will leave your readers to guess where these machines were purchased, and the exact cost of bits



An interesting souvenir of the Atlantic flight: Filling the petrol tanks of Capt. Sir John Alcock's Vickers-Vimy aeroplane with Shell spirit, in readiness for the now historic flight across the Atlantic. As will be seen, the photograph is autographed by Capt. Alcock.

which it has been necessary to buy before they could leave the ground.

"So far, we are the only English flying people in this country, but the Danish Lufttrafik Co. inform me that they have got Capt. Faber and someone else either at Copenhagen or on the way to Iceland, where they are sending an expedition. There are two German flying seaplanes here in Stockholm, which purpose doing the traffic to Malmö and other places. Dr. Sablatnig is in charge, and rumour hath it that one of his two pilots has been requested to leave the country already for the second time of asking. The four-engined Handley is expected at Malmslatt, the Flying Corps headquarters, any

day now, and then it is to come on here, but where it will rest its weary head, or rather its little wheels, remains to be seen. Personally I haven't seen a field where I should care to land anything bigger than a Bristol Fighter round here. I shall be only too glad to give anyone information on civilian flying in this country if they will communicate with me here. I may add that the general public are very enthusiastic about flying, and we have no difficulty in getting 100 kr. for a 10-min. flight and 150 kr. for a 20-min. flight. When the ice comes we shall fit skids to the machines, and try and persuade the Swedes to join our flying school, which is just starting."

International Air Traffic

BRIEF reference was made in our last issue to the formation at the Hague of the International Air Traffic Association, to facilitate the commercial operation of long-distance "airways," especially in the north of Europe. The conference was called at the instance of Mr. G. Holt Thomas, Chairman of Aircraft Transport and Travel, Ltd., and Major-General Sir W. S. Brancker presided over the meeting, which were attended by representatives of aerial transport companies of Norway, Sweden, Denmark and Germany. By permission of the Dutch Government the meetings were held at the Ministry of Agriculture, Industry and Trade.

The London-Paris Air Express

THE Airco express aeroplanes between London and Paris completed on Saturday last a second week of regular daily service. The machine which left London at 12.30 p.m. with passengers and parcels reached Paris at 2.50 p.m., and the machine flying the other way, leaving Paris at 12.30 p.m., landed at Hounslow at 2.30 p.m.—a quarter of an hour before time—having made its 250-miles journey at a speed of 125 miles an hour.

During the fortnight the service has been running daily, thirty flights have been made. Only once, when there was a hurricane, with sheets of rain at Hounslow, did a machine fail to get away; and even on that day, despite squalls of more than 100 miles an hour velocity in the Channel, the machine from Paris fought its way through. On only one flight has there been a forced landing, and in that case the pilot, after a ten-minutes' halt at an aerodrome *en route*, was in the air again, and duly completed his journey.

As the service is mainly an express parcels and goods service, it is interesting to note from the waybills the actual contents of the parcels which during the first twelve days' flying—and at rates ranging from 7s. 6d. to 3s. 9d. per pound—were carried by air between London and Paris. The list comprises: Bankers' script, leather, films, photo plates, champagne, sweetmeats, grouse, bills of lading, plans and

drawings, dress material, newspapers, millinery, samples of clothing, Devonshire cream.

There is now a greatly-increased interest in the service on both sides of the Channel. Within the last few days the agents in Paris have been negotiating for the regular carriage, in consignments spread over various days of the week, of as much as 600 lb. and 1,000 lb. of goods. It is now proposed also that certain vaccines, which must be used within 24 hours or their potency is lost, should be consigned to Aircraft Transport and Travel for aerial transport.

A Fast Trip to Holland

ON a new Airco 9a, fitted with a 450 h.p. Napier aero engine, Capt. Gathergood, on September 5, flew from Hounslow to Soesterberg, in 2 hrs. 10 mins., which it is believed is the fastest journey to Holland so far accomplished. Capt. Gathergood states that he travelled at a speed of 134-5 m.p.h., and had to land at Soesterberg owing to shortage of petrol.

Flying to Rome from Paris.

ON a Morane parasol monoplane, the French pilot, Maneyrol, set out from Paris, on September 2, to fly to Rome and back in a day. He left Villacoublay at 5.51 a.m., and landed at the Santocelli aerodrome, at Rome, at 11.50 a.m., having covered the 1,250 kiloms. in 5 hours 59 mins. After resting for two hours, he set out on the return journey to the French capital, but, owing to the mist and the clouds, he was obliged to land at Pisa, having covered 300 miles in an hour and a half.

The monoplane, which is fitted with a 160 h.p. Le Rhône motor, is characterised by its *haubannage rigide*.

From Spain to Italy

A NIEUPORT Macchi machine, piloted by the aviators Busio and Caratti, landed at Varese (Italy) on September 4, having made a non-stop flight from Barcelona in 5 hours 50 mins.

AEROPLANE OR AIRSHIP?

IN the course of his Presidential Address at the Bournemouth meeting of the British Association on Tuesday, the Hon. Sir C. A. Parsons, K.C.B., D.Sc., F.R.S., said:—

"In August, 1914, the British Air Services possessed a total of 272 machines, whereas in October, 1918, just prior to the Armistice, the R.A.F. possessed over 22,000 effective machines. During the first 12 months of the War the average monthly delivery of aeroplanes to our Flying Service was 50, while during the last 12 months of the War the average deliveries were 2,700 per month. So far as aero-engines are concerned, our position in 1914 was by no means satisfactory. We depended for a large proportion of our supplies on other countries. In the Aerial Derby of 1913, of the 11 machines that started, not one had a British engine. By the end of the War, however, British aero-engines had gained the foremost place in design and manufacture, and were well up to requirements as regards supply. The total horse-power produced in the last 12 months of the War approximated to 8,000,000 of brake horse-power, a figure quite comparable with the total horse-power of the marine engine output of the country.

"In view of the recent Transatlantic flights, I feel that it may be opportune to make the following observations on the comparative utility of aeroplanes and airships for commercial purposes. In the case of the aeroplane, the weight per horse-power increases with the size, other things being equal. This increase, however, is met to some extent by a multiplicity of engines, though in the fuselage the increase remains.

"On the other hand, with the airship the advantage increases with the size, as in all ships. The tractive effort per ton of displacement diminishes in inverse proportion to the dimensions, other things, including the speed, being the

same. Thus, an airship of 750 ft. length and 60 tons displacement may require a tractive force of 5 per cent., or 3 tons, at 60 miles per hour; and one of 1,500 ft. in length and $8 \times 60 = 480$ tons displacement would only require $2\frac{1}{2}$ per cent. $\times 480 = 12$ tons at the same speed, and would carry fuel for double the distance.

"With the same proportion of weight of hull to displacement, the larger airship would stand double the wind pressure, and would weather storms of greater violence and hailstones of greater size. It would be more durable, the proportional upkeep would be less, and the proportional loss of gas considerably less. In other words, it would lose a less proportion of its buoyancy per day.

"The airship appears to have a great future for special commerce where time is a dominant factor and the demand is sufficient to justify a large airship. It has also a great field in the opening up of new countries where other means of communication are difficult. The only limitation to size will be the cost of the airship and its sheds, just as in steam vessels it is the cost of the vessels and the cost of deepening the harbours that limit the size of Atlantic liners.

"Such developments generally take place slowly, otherwise failures occur—as in the case of the Great Eastern—and it may be many years before the airship is increased from the present maximum of 750 ft. to 1,500 ft. with success, but it will assuredly come. If, however, the development is subsidised or assisted by Government, incidental failures may be faced with equanimity and very rapid development accomplished. In peace time the seaplane, aeroplane and airship will most certainly have their uses. But, except for special services of high utility, it is questionable whether they will play more than a minor part as compared with the steamship, railway and motor transport."



Douglas-Pennant Inquiry

THE inquiry into the dismissal of Miss Violet Douglas-Pennant from the position of commandant of the Women's Royal Air Force will be opened at the House of Lords on October 14. The chairman will be Lord Wrenbury, and the proceedings will be open to the public.

Miss Douglas-Pennant's statement of the case was filed at the House of Lords last week. Other persons interested are permitted to lodge statements up to September 23, having an opportunity in the interval of seeing the exact nature of Miss Douglas-Pennant's complaints.

An Appeal to Ex-R.N.A.S. Members

IN connection with the exhibition "Airships in Peace and War," opening at the Prince's Galleries on September 15, Lady Sybil Grant has addressed an appeal to members of the original R.N.A.S. It is hoped to make 10,000 shillings clear of expenses towards an airship bed at St. Dunstan's. The sum represents the total number of in-patients and out-patients at Lady Sybil's hospital during the War.

Lady Sybil asks the R.N.A.S. members to help their late Hospital Commandant by sending something to be sold at the gift stall in the exhibition or the sum of 1s. It should be addressed to Lady Sybil Grant, at Primrose House, Roehampton, S.W. 15.

R.A.F. on the Dwina River

AMONGST the various British units employed in fighting the forces of Bolshevism in North Russia is the R.A.F. seaplane flight on the Dwina River. This unit has been continuously engaged since early June in co-operation with the river craft despatched by the Admiralty to take action against the Bolshevik river gunboats.

The duties of this flight have been arduous. A constant watch has been kept on the enemy vessels, not only by day, but throughout the semi-darkness of the Arctic summer nights; enemy vessels have been effectively bombed and machine-gunned; spotting for the guns of our river flotilla has been directed by wireless, and photographic surveys regularly carried out.

The conditions under which this flight lives are somewhat novel. Their home consists of a barge, which moves up or down the river according to the situation; the difficulties consequent on a moving base have been cheerfully met by all ranks of this unit to whose co-operation a considerable share of the success of the river expedition is due.

Air Work in Russia

It was announced by the War Office on September 2, that the R.A.F. had co-operated in an attack on Rimkaya on Lake Onega, and in their report of September 3, the

Bolsheviks announced that they had captured an aeroplane and taken the pilot, an Englishman, prisoner.

Kronstadt was bombarded on August 30 by some 18 machines, which were given a hot reception.

Where Air Raids still Continue

THE *Kurjer Warszawski* reports that on August 27 Sosnovitz, in the Dombrowa coal district of Poland, was three times attacked by German aeroplanes. At 6.40 a.m. a German aeroplane, flying low over the town, shot at passers-by in the streets from a machine-gun. At 9.35 the same manoeuvre was repeated, the most crowded streets of Sosnovitz being especially attacked. Two persons were seriously wounded and about 30 slightly wounded.

At 7 p.m., when there was a considerable traffic, a third German aeroplane shot at the streets of the town. Three other German aeroplanes afterwards came up. Bombs were thrown by the aeroplanes at the Polish outposts on the frontier and on the bridge at Szopienice.

The Bombardments of Calais

ON the occasion of the formal presentation of the Croix de Guerre on August 31 it was announced that Calais sustained 60 bombardments by Zeppelins, aeroplanes and warships. Some 2,000 bombs were dropped in the town, more than 150 houses were destroyed, 230 persons were killed and 400 injured, while the material damage amounted to £1,200,000. Yet, in spite of this, the population, normally 75,000, never fell below 60,000.

A Mexican Border Incident

FROM the Mexican border it is reported that an American army aeroplane while patrolling over the Rio Grande has been heavily fired on by Mexican Federals, and the pilot, Capt. Macnabb, severely wounded in the head. The matter has been brought to the notice of President Wilson.

The Fate of the Farman Goliath

THE following is a note published in Paris, which briefly sets forth the facts concerning the fate of the Farman Goliath in the desert.

"The Goliath made a forced descent owing to the loss of a propeller on August 16 at 7.30 a.m., on the beach 115 miles north of St. Louis. The machine was broken up, but the crew were uninjured.

"They endeavoured to walk to St. Louis, but were forced to return to the machine owing to thirst, and lived for six days on reserve provisions and on shell-fish, and satisfied their thirst by means of distilled sea-water.

"Their machine was observed by natives on August 21, and relief reached them the following day. They arrived at Medirdra on August 27.

THE ROYAL AIR FORCE

London Gazette, September 2

The following temporary appointments are made at the Air Ministry:—
Staff Officer, 2nd Class (P.).—Sqn. Ldr. J. H. Liddendale, from (S.O.), 1st Class; Sept. 1.

Staff Officer, 3rd Class (Air).—Lieut. R. V. Bramwell-Davis; Sept. 1, vice Lieut. R. C. Cox.

Staff Officer, 1st Class (P.).—Lieut.-Col. C. T. Maclean, D.S.O., M.C.; Aug. 19 (substituted for the notification in *Gazette* of Aug. 19 and 26).

The following temporary appointment is made (graded for purposes of pay at Air Ministry rates):—

Staff Officer, 2nd Class (T.).—Capt. R. G. Parry, D.S.O., and to be actg. Maj. whilst so employed; Aug. 9.

The notification in *Gazette* of Aug. 15 concerning Capt. V. Buxton is cancelled.

Flying Branch

Maj. (actg. Lieut.-Col.) F. W. Lucas to be Maj. (A ship.) and relinquishes the actg. rank of Lieut.-Col. on ceasing to be employed as Lieut.-Col.; Aug. 2.

Lieut. R. H. Stocken is graded for purposes of pay and allowances as Capt. whilst employed as Capt. (A.); May 1.

Lieut. G. H. Langley is graded for purposes of pay and allowances as Capt. (without flying pay) whilst employed as Capt. (A.); May 1.

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in rank as Sec. Lieuts. (A.):—C. W. Kerr; July 5, 1918. G. E. Leaman; Aug. 31, 1918. G. L. Ross; Sept. 1, 1918.

P.F.O. R. H. Barker (late R.N.A.S.) is granted a temp. commn. as Sec. Lieut. (A.); July 18, 1918.

The following relinquish their commns. on reversion to I.A.R.O.:—Lieut. E. A. Floyer, M.C.; March 17. Lieut. F. C. C. Yeats-Brown; Aug. 13.

The following relinquish their commns. on ceasing to be employed:—Sec. Lieut. C. F. Williams (Sec. Lieut., R. Highrs.); April 1. Lieut. (Hon. Capt.) W. T. Wood (Capt., Nova Scotia R.); April 14. Lieut. F. C. J. Whigham (Lieut., Sask. R.); April 27. Sec. Lieut. W. W. Honeywood (Lieut., Lrs.); June 6. Lieut. D. W. Davis (Capt., Sask. R.); June 11.

Lieut. F. J. Gill (Lieut., K.R.R.C.); June 30. Lieut. G. L. Shephard (Lieut., E. Ont. R.); July 9. Lieut. J. V. Bowring (Sec. Lieut., S. Lancs. R.); July 30. Sec. Lieut. T. S. Duddy, M.C., D.C.M. (Sec. Lieut., Durh. L.I.); Aug. 11. Sec. Lieut. (Hon. Lieut.) H. W. Pearson (Lieut., Can. M.G.C.); Aug. 12. Maj. C. H. Stringer (Capt., R. Irish Lrs.); Aug. 13. Lieut. F. A. Garwood (Lieut., Bedf. R.); Aug. 19. Lieut. F. Hotrum (Lieut., Can. M.G.C.); Aug. 22.

(Then follow the names of four officers who are transfd. to the Unemployed List under various dates.)

The following Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—C. Kennard (contracted on active service); March 30 (substituted for notification in *Gazette* Jan. 7). A. R. Metelkamp; June 22 (substituted for notification in *Gazette* May 23). R. M. Tate (contracted on active service); Aug. 22. G. H. Jacob (caused by wounds); Aug. 27.

The following relinquish their commns. on account of ill-health:—Lieut. C. Geen (Lond. R.); July 28 (substituted for notification in *Gazette* March 11). Sec. Lieut. R. H. Harlow.

Sec. Lieut. W. V. Wright resigns his commn.; Jan. 27 (substituted for notification in *Gazette* Nov. 8, 1918).

Sec. Lieut. (Hon. Lieut.) C. M. Moore to take rank and prec. as if his appointment as Sec. Lieut. bore date Feb. 7.

The surname of Sec. Lieut. L. P. Boudler is as now described, and not "Boulder," as stated in *Gazette* May 30.

The surname of Sec. Lieut. (Hon. Lieut.) R. S. Blucke is as now described, and not "Blacke," as stated in *Gazette* April 15.

The initials of Sec. Lieut. W. Long is as now described, and not "L. W., as stated in *Gazette* April 15.

The surname of Sec. Lieut. F. Gouthro is as now described, and not "Guthro," as stated in *Gazette* April 15.

The initials of Lieut. (Hon. Capt.) A. W. B. S. F. Bloy are as now described, and not as stated in *Gazette* July 29.

The initials of Lieut. H. G. Lomborg are as now described and not as stated in *Gazette* July 29.

The initials of Lieut. W. T. S. Lewis are as now described, and not "W. T.," as stated in *Gazette* April 1.

The initials of Sec. Lieut. K. H. Ashton are as now described, and not "K.," as stated in *Gazette* April 29.

The notification in *Gazette* Jan. 31 concerning Sec. Lieut. W. J. Griffiths is cancelled.

The notification in *Gazette* April 1 concerning Lieut. E. C. Hoar is cancelled.

The notification in *Gazette* April 15 concerning Lieut. (Hon. Capt.) W. T. Wood is cancelled.

The notification in *Gazette* April 18 concerning Sec. Lieut. J. Hamilton is cancelled.

The notification in *Gazette* May 1 concerning Lieut. H. A. Hannay is cancelled.

The notification in *Gazette* June 6 concerning Lieut. F. C. J. Whigham is cancelled.

The notification in *Gazette* July 11 concerning Lieut. F. Adams is cancelled.

The notification in *Gazette* July 15 concerning Sec. Lieut. J. G. Crossley is cancelled.

The surname of Lieut. C. M. Holbrook is as now described, and not "Holbrooks," as stated in the *Gazette* of Aug. 19.

The notification in *Gazette* of July 18 concerning Lieut. G. L. Shepherd (Lieut., W. Ont. R.) is cancelled.

The notification in *Gazette* of Aug. 5 concerning Sec. Lieut. C. R. Fraser is cancelled.

Administrative Branch

Lieut.-Col. (actg. Col.) F. H. G. Playfair relinquishes the actg. rank of Col. on ceasing to be employed as Col.; Aug. 1.

Capt. H. C. Jones is graded for pay and allowances as Maj. whilst employed as Maj.; May 1.

Capt. R. L. S. Radles to be Capt., from (S.O.); Aug. 16.

Lieut. A. W. Rouse to be actg. Capt. whilst employed as Capt., from March 9 to April 30.

The following Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts.:—A. W. Rouse; May 1. H. L. McNaughton; July 2.

The following Sec. Lieuts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts.:—C. W. Probets; May 1. W. R. Castings; May 11.

Lieut. T. T. Pickup to be Lieut., from (S.O.); Aug. 14.

Sec. Lieut. T. F. Aitchison to be actg. Lieut. whilst employed as Lieut., from Nov. 2, 1918, to April 30.

The following Sec. Lieuts. are graded for pay and allowances as Lieuts. whilst employed as Lieuts.:—T. F. Aitchison, C. W. Braddy; May 1.

Sec. Lieut. (Hon. Lieut.) L. S. Dell (Lieut., R.F.A.) relinquishes his commn. on ceasing to be employed; July 2 (substituted for notification in the *Gazette* of June 27).

(Then follow the names of four officers who are transfd. to the Unemployed List under various dates.)

Lieut. P. A. Katte is dismissed the Service by sentence of a General Court-Martial; Aug. 13. Sec. Lieut. (Hon. Maj.) J. L. McLean (R.A.S.C.), (T.F.), relinquishes his commn. on account of ill-health; Aug. 31.

The initials of Lieut. W. B. Maitland, D.S.O., are as now described, and not "D. B.," as stated in the *Gazette* of April 25.

The rank of Lieut. J. C. Bain is as now described, and not "Sec. Lieut. (Hon. Lieut.)," as stated in the *Gazette* of April 18.

The initials of Sec. Lieut. J. Mann is as now described, and not "T.," as stated in the *Gazette* of May 6.

The notification in the *Gazette* of July 15 concerning Sec. Lieut. W. H. Dibben is cancelled.

Technical Branch

Lieut. R. J. Sladden, M.B.E., D.C.M., to be actg. Capt. whilst employed as Capt., Grade (A) (from Feb. 18 to April 30).

Lieut. W. S. Harms is graded for purposes of pay and allowances as Capt. whilst employed as Capt., Grade (B); May 1.

Lieut. H. E. Hazlehurst relinquishes the grading for purposes of pay and allowances as Capt. on ceasing to be employed as Capt.; Aug. 21.

Lieut. H. Hoad to be Lieut., Grade (A), from Grade (B); Aug. 12.

Lieut. R. A. Knott to be Lieut., Grade (B), from (A'Shp.); Aug. 18.

The following Sec. Lieuts. are graded for purposes of pay and allowances as Lieuts. whilst employed as Lieuts., Grade (A):—S. E. Castle; Dec. 24, 1918. E. O. Brown; Feb. 1.

Sec. Lieuts. to be Lieuts.:—(Hon. Lieut.) H. Allsebrook; April 2, 1918 (without pay and allowances prior to June 21, 1918). J. Mytton; March 27.

Sec. Lieut. E. W. Hootton-Smith relinquishes the grading for purposes of pay and allowances as Lieut. on ceasing to be employed as Lieut.; Aug. 16.

Maj. S. J. Lacey, O.B.E. (Shipwright Lieut. Comdr., R.N.) relinquishes his commn. on ceasing to be employed; March 29 (substituted for notification in the *Gazette* of May 6).

(Then follow the names of two officers who are transfd. to the Unemployed List under various dates.)

Physical Training Branch

Lieut. K. S. Hunter (Lieut., Dn. Gds.) resigns his commn.; Sept. 3.

Medical Branch

Capt. (A/Maj.) A. P. Bowdler to be actg. Lieut.-Col. while so employed; Aug. 1.

Lieuts. to be Capts.:—H. F. Squire; June 18. J. J. O'Mullane; July 15. E. H. L. Le Clezio; July 29. N. Rumbold; Aug. 14. V. A. T. Spang; Aug. 19.

The following Capts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—T. E. Mulvany; Aug. 13 (substituted for notification in the *Gazette* of Aug. 15). E. H. Hogg; Aug. 22.

Capt. A. Gleeson (Capt., R.A.M.C.) relinquishes his commn. on account of ill-health contracted on active service; June 5.

Chaplains' Branch

Rev. H. Beauchamp, M.C. (T. Chaplain to the Forces, 3rd Class, R.A.C.D.), is granted a temp. commn. as Chaplain with the relative rank of Capt. (R.C.); July 26.

Memoranda

(Then follow the names of 200 Cadets granted hon. commns. as Sec. Lieuts. Lieut.-Col. E. H. Griffith, O.B.E. (Maj., (Lieut.-Col.) retd. pay), relinquishes his commn. on ceasing to be employed, and is permitted to retain his rank; Aug. 19.

Capt. G. S. Ridgway (Lieut., R.N.) relinquishes his commn. on ceasing to be employed; July 1.

Temp. Hon. Lieut. W. Bryson relinquishes his commn. on ceasing to be employed; April 30.

London Gazette, Sept. 5.

Permanent Commissions.

The notification appearing in *Gazette* of Aug. 1 appointing the following officers to permanent commns., is cancelled:—Lieut.-Col. R. G. Cherry, M.C., Lieut.-Col. W. H. C. Mansfield, D.S.O., Maj. K. R. Binning, M.C. (A.), Maj. R. A. Chalmers, O.B.E., A.F.C. (A.), Maj. G. Henderson (A.), Maj. C. M. Murphy (A.), Maj. H. A. Van Ryneveld, D.S.O., M.C. (A.), Capt. F. E. P. Barrington (A.), Capt. C. Cooper (A.), Capt. R. B. C. M. T. de Prix (S.O.), Capt. E. de C. Halifax, D.S.O. (A. and S.), Capt. D. R. Hanlon (A.), Capt. G. H. A. Hawkins (S.O.), Capt. F. P. Holliday, D.S.O., M.C. (A.), Capt. H. W. G. Jones, M.C. (A.), Capt. E. L. Oliver, M.C. (A.), Lieut. E. O. L. Bell (Ad.), Lieut. M. A. Benjamin, M.C. (S.O.), Lieut. G. B. Booth (Ad.), Lieut. C. S. Fulton (S.O.), Lieut. G. W. N. R. Haynes (A.), Lieut. C. H. Noble-Campbell, A.F.C. (A.), Lieut. C. D. Skinner (A.), Lieut. B. S. Wilcox, D.F.C. (A.).

The initials of Lieut. W. J. King are as now described, and not W. J. N., as in the *Gazette* of Aug. 1; and his classification is "T," and not "S.O.," as in the *Gazette* of Aug. 1.

The surname of Capt. W. R. D. Acland (A.) is as now described, and not Ackland as in the *Gazette* of Aug. 1.

The surname of Lieut. C. F. B. Basil (T.) is as now described, and not Basil, as in the *Gazette* of Aug. 1.

The surname of Capt. E. A. Beaulah (S.O.) is as now described, and not Beulah, as in the *Gazette* of Aug. 1.

The surname of Capt. H. F. Delarue (A. and S.) is as now described, and not Delarue, as in the *Gazette* of Aug. 1.

The surname of Lieut. M. H. Findlay, D.S.C., D.F.C. (A.) is as now described, and not Findley, as in the *Gazette* of Aug. 1.

The surname of Lieut. L. E. M. Gillman (S.O.) is as now described, and not Gilman, as in the *Gazette* of Aug. 1.

The surname of Capt. E. J. Hodsell (S.) is as now described, and not Hodsell, as in the *Gazette* of Aug. 1.

The surname of Lieut. R. E. Keys, D.F.C. (A.) is as now described, and not Keyes, as in the *Gazette* of Aug. 1.

The initial of Lieut. J. McBain, D.F.C. (A.) is as now described, and not "I.," as in the *Gazette* of Aug. 1.

The initials of Lieut. A. B. Raymond-Barker (A.) are as now described, and not "B.," as in the *Gazette* of Aug. 1.

The initials of Capt. C. S. Richardson, M.B.E. (Ad.) are as now described, and not as in the *Gazette* of Aug. 1.

The classification of Lieut. D. S. Robertson is "O.," and not "A.," as in the *Gazette* of Aug. 1.

The initials of Maj. R. P. Whitehead (A. and S.) are as now described, and not "R.," as in the *Gazette* of Aug. 1.

The initial of Lieut. J. Whitford (A.) is as now described, and not "I.," as in the *Gazette* of Aug. 1.

The surname of Lieut. A. T. Wynyard-Wright (S.O.) is as now described, and not "Wynward-Wright," as in the *Gazette* of Aug. 1.

The surname of Lieut. W. J. Millen (A.) is as now described, and not "Millan," as in the *Gazette* of Aug. 1.

The surname of Lieut. A. G. Peace (A.) is as now described, and not "Pearce," as in the *Gazette* of Aug. 1.

The surname of Maj. E. L. Millar, M.B.E. (A.) is as now described, and not "Miller," as in the *Gazette* of Aug. 1.

The following temp. appt. is made at the Air Ministry:—
Staff Officer, 3rd Class.—(P.).—Flight-Lieut. G. W. Dobson, O.B.E.; Aug. 31, from S.O. 2, vice Flight-Lieut. H. S. Neville.

The following temp. appt. is made:—
Staff Officer, 3rd Class (Q.).—Flying Officer C. E. Hodgson, M.B.E., from S.O. 2 (Aug. 15).

The surname of Sqdn. Ldr. J. H. Lidderdale is as now described, and not "Liddendale," as stated in the *Gazette* of Sept. 2.

Flying Branch

Sec. Lieuts. to be Lieuts.—H. F. Griffith; (May 8, 1918). P. Segrave (since killed); (Oct. 26, 1918). Hon. Lieut. T. S. Campbell; (Nov. 9, 1918).

The following relinquish their commns. on ceasing to be employed:—
Lieut. F. R. McCall, D.S.O., M.C., D.F.C. (Capt., Alberta R.); (June 23).

Sec. Lieut. (Hon. Lieut.) G. F. Antell (Lieut., Can. Ord. Corps); (June 30).

Sec. Lieut. A. Woolsey (Lieut., Northants R.); (July 16). Sec. Lieut. (Hon. Lieut.) P. W. Fox (Lieut., Brit. Columbia R.); (Aug. 28).

(Then follow the names of 162 officers who are transfd. to the Unemployed List under various dates.)

Lieut.-Col. G. Wellesley, M.C. (G. Gds.), relinquishes his commn. on acct. of ill-health (Sept. 3).

Lieut.-Col. J. E. Tennant, D.S.O., M.C. (Capt., Brev. Maj., Scots Gds.), resigns his commn.; (Sept. 6).

Capt. J. C. L. Barnett, M.C. (Oxf. and Bucks L.I., T.F.), relinquishes his commn. on acct. of ill-health; (Sept. 3).

Lieut. R. T. Percival relinquishes his commn. on acct. of ill-health contracted on active service, and is permitted to retain his rank; (Aug. 23).

Lieut. Lord C. C. Douglas (K.O.S.B.), relinquishes his commn. on acct. of ill-health caused by wounds; (Sept. 4).

The following Lieuts. resign their commns.:—Hon. Capt. F. W. Hartridge (Capt., R.A.S.C.), A. M. Bennett (Lieut., R.W. Surr. R.); (Sept. 6).

The surname of Lieut. T. M. Johns is as now described, and not "Jones," as stated in the *Gazette* of Aug. 8.

The notification in *Gazette*, Feb. 18, concerning Lieut. J. Freman (Lieut., Brit. Col. R.) is cancelled.

The notification in *Gazette*, May 20, concerning Sec. Lieut. A. K. Barter is cancelled. The notification in *Gazette*, June 3, to stand.

The notification in *Gazette*, June 6, concerning Sec. Lieut. J. H. Yalden is cancelled. The notification in *Gazette*, April 29, to stand.

Administrative Branch

Lieut. R. Kane is granted the hon. rank of Capt.; (Sept. 23, 1918).

Sec. Lieut. H. B. Brown to be Lieut.; (Nov. 24, 1918).

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in rank:—C. R. Campbell; (Aug. 24, 1918). W. Simmonds; (Nov. 1, 1918).

L. F. Joyner; (April 17).

Sec. Lieut. J. Cameron to be Sec. Lieut., from (A.); (July 15, 1918).

Sec. Lieut. W. Knight to be Sec. Lieut., from (K.B.); (April 17).

(Then follow the names of 30 officers who are transfd. to the Unemployed List under various dates.)

Sec. Lieut. (actg. Capt.) C. W. Proberts resigns his commn. and is permitted to retain his rank; (Sept. 4). (Substituted for notification in *Gazette* July 22.)

The notification in *Gazette* Nov. 8, 1918, concerning Sec. Lieut. F. Moss is cancelled.

The notification in *Gazette*, July 18, concerning Sec. Lieut. C. W. Sutcliffe is cancelled.

Technical Branch

Sec. Lieut. (Hon. Lieut.) V. H. Tait to be Lieut., without pay and allowances, prior to July 1, 1918; (April 2, 1918) (substituted for the notification in the *Gazette* of Feb. 18).

Sec. Lieut. E. L. M. Emtage to be Lieut.; (July 12, 1918) (substituted for the notifications in the *Gazettes* of Jan. 3 and Aug. 19).

Sec. Lieut. W. J. Scott to be Lieut.; (April 29).

Sec. Lieuts. to be Lieuts. without pay and allowances, of that rank:—Hon. Lieut. J. Robertson; (April 2, 1918). A. W. Mansfield; (June 1).

Sec. Lieut. H. B. Brown to be Sec. Lieut., Grade (A.) from (Ad.); (Aug. 17, 1918).

Sec. Lieut. J. L. Irving to be Sec. Lieut., Grade (A.) from (O.); (Jan. 20).

Sec. Lieuts. (Ad.) to be Sec. Lieuts., Grade (B):—J. E. Neary; (Feb. 20).

W. Hawksworth; (May 30).

Pilot Offr. J. S. Ferguson to be Pilot Offr., Grade (B) from (Ad.); (Aug. 6).

Sec. Lieut. F. C. Rayson to be Sec. Lieut., Grade (B) from (A'ship); (July 17).

(Then follow the names of 31 officers who are transfd. to the Unemployed List under various dates.)

The initials of Capt. R. P. J. McCoy are as now described, and not "R. P. T.," as stated in *Gazette*, Aug. 22.

The surname of Capt. A. A. Bryce-Buchanan is as now described, and not "Bryce-Burdon," as stated in *Gazette* April 1.

The notification in *Gazette* May 23 concerning Sec. Lieut. R. E. Pudney is cancelled.

The notification in *Gazette* June 3 concerning Sec. Lieut. (Hon. Capt.) E. R. Loder is cancelled.

Medical Branch

Temp. Capt. A. E. Panter is granted the actg. rank of Maj. whilst specially empd.; (Aug. 1).

Flying Offr. G. Hughes is transfd. to the Unempld. List (Aug. 13);.

The initial of Capt. O. Gleeson (Capt., R.A.M.C.) is as now described, and not "A.," as stated in *Gazette* Sept. 2.

Dental Branch

T. H. Jones is granted a temp. commn. as Flying Offr.; (Aug. 30).

Lieut. G. H. W. Randall is transfd. to the Unempld. List; (April 2).

Chaplains' Branch

Rev. M. J. Dunne (late temp. Chapln. to the Forces, 4th Cl., R.A.C.D.) is granted a temp. commn. as Chapln. with the relative rank of Capt. (Roman Catholic); (Aug. 2).

Asst. Principal Chapln. (Wesleyan).—The Rev. A. S. Bishop is granted a temp. commn. as Chapln. with the relative rank of Capt.; (April 26, seny. Jan. 1), and is granted the relative rank of Maj. whilst empd. as Asst. Principal Chapln. (Wesleyan).

Memoranda

Then follow the names of three Overseas Cadets granted temp. commns. as Sec. Lieuts., and 169 Cadets granted hon. commns. as Sec. Lieuts.

Lieut.-Col. (actg. Brig.Gen.) C. C. Marindin, C.B.E., D.S.O. (Maj. (Bt. Lieut.-Col.), R.G.A.), relinquishes his commn. on ceasing to be empd.; (Sept. 1).

(Then follow the names of 16 officers who are transfd. to the Unemployed List under various dates.)

New France-Morocco Line

AFTER trying for two years, the "Compagnie Francaise France-Maroc," has secured permission to run an air service between France and Morocco via Spain, the Spanish Government having withdrawn its main objections.

The first machine of the intended regular service left Toulouse on September 1, and reached Barcelona (150 miles) in 105 mins. From Barcelona the aeroplane flew to Alicante (270 miles), where the mails were transferred to another machine for conveyance across the Mediterranean to Casablanca, on the west coast of Morocco (550 miles).

There will be branch lines to Rabat (also on the Atlantic coast of Morocco), and to Oran in Algeria.

Passengers or mails will leave Paris by the night train for Toulouse, and proceed thence by aeroplane, reaching Rabat in about 16 hours' flying from Toulouse, thus bringing Rabat within two days' journey of Paris.

Fast Flying in France

IN a successful attempt to win the Coupe H. Deutsch on September 2, Sadi Lecoigne, on a Spad-Herbemont, fitted with a 300 h.p. Hispano motor, succeeded in completing the 200 km. (125 miles) course in 48 min. 8 secs., his average speed working out to 249.307 km. (155.1 miles) per hour. The start was from St. Germain, and the course was over Senlis, Meaux and Melun.

It may be recalled that one of the conditions of this competition is that to secure the cup a competitor must improve on the previous winner's speed by at least 10 per cent. The previous holder was Eugene Gilbert, whose speed, on a Deperdussin, was 175 km. per hour. To take the cup from Lecoigne, the next contestant must attain an average speed of 274.23 km. per hour.

Aerial Services in Germany

ACCORDING to the *Kreuz Zeitung*, the Prussian Ministry of Trade has sanctioned the formation of a limited liability company for air traffic in Frankfurt-on-the-Main, with a share capital of 15,000,000 marks (nominally £750,000). The company will begin with a post and passenger service of some

200 aeroplanes, which will fly between Cologne and Frankfurt, Stuttgart, Basel, Berlin, Breslau, and Hamburg.

That Zeppelin Story

From a statement published in the *Tägliche Rundschau* it appears that the report that German airships had been destroyed by their crews is not correct.

Not only is it stated that there was no wilful destruction of the seven airships, but it is pointed out that this was not possible, if only for the reason that in accordance with the Armistice terms all airships and aeroplanes had to be dismantled (*Abgerüstet*).

A German Giant

WHAT is claimed to be the largest aeroplane in the world, manufactured by the Aviatik works of Leipzig, has just carried out its first flights, according to a message from Berlin. The dimensions of the machine are approximately 130 ft. in span, 73 ft. in length, and 20 ft. in height. It is fitted with two 500 h.p. and two 250 h.p. Benz engines, and is capable of carrying, besides the commander, two navigators, two mechanics, one steward, and 18 passengers with luggage.

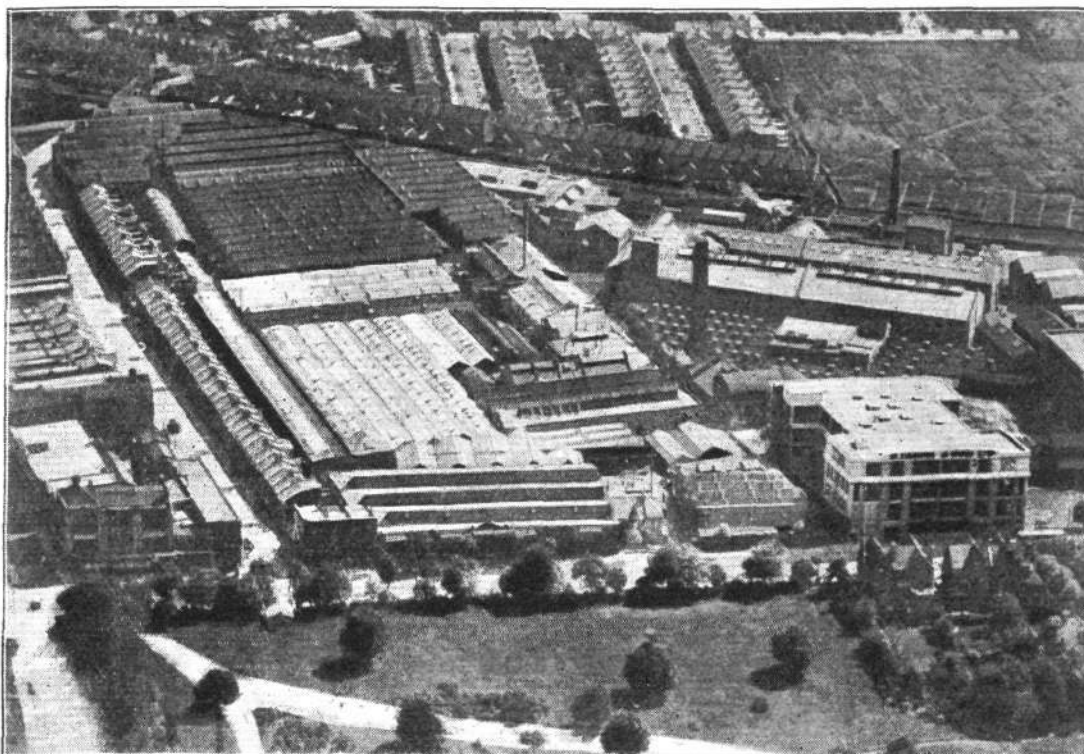
Aeroplanes for Forest Patrols

THE effective work which can be done by aeroplane patrols in promptly detecting forest fires, has been demonstrated in California. During the six weeks ended August 2, the patrols organised for this purpose from the flying stations at Sacramento, Alessandro and San Diego, discovered 56 fires, which owing to their being promptly reported and dealt with, caused only nominal damage. The patrols made 373 flights, the aggregate distance covered being 45,376 miles.

Glidden Trophy for Aerial Touring

WITH a view to encouraging the production and development of flying machines for touring and commercial purposes, Mr. Chas. J. Glidden has offered to the Aerial League of America a trophy which is to be competed for under somewhat similar rules to those which governed the award of the Glidden Trophy in motor-car competitions some ten years ago. The rules are now being drawn up, and the competition will take the form of a reliability and efficiency trial.

SIDE-WINDS



The Napier Works at Acton, snapped from Capt. Gathergood's Airco (De H. 9), with 450 h.p. Napier Aero Engine.

To their range of mascots Messrs. S. Smith and Sons (M.A.), Ltd., have recently added one of "Old Bill," Capt. Bairnsfather's embodiment of that cheery, never-say-die spirit of the British fighting man. Strongly made, beautifully chased and finished old bronze. "Old Bill" can be had at £3 3s. a time. Each mascot bears the signature of Capt. Bruce Bairnsfather. Orders can be sent to 179-185, Gt. Portland Street, or any one of the Smiths' depôts.

AN opportunity for aircraft firms and others to replenish their stock of fittings, etc., occurs in connection with the sale of the assets of the Motor and Aircraft Supplies Co., Ltd. As set forth in an announcement elsewhere, the liquidators are desirous of disposing of all the remaining stock, both at Long Acre and also at the works, as quickly as possible. It is a comprehensive stock, and apart from the supplies which are of interest to the aircraft industry, there are many items which could be utilised in other trades. With the past reputation of Ascol House, there should be no doubt as to the workmanship and quality of the goods, most of which were, prior to the Armistice, passed by the A.I.D. to meet the ready demand of contractors all over the country, who were requiring deliveries, ex stock, without going through full formalities and routine. Full particulars of the stock can be obtained from 125, Long Acre.

WE have received from Mr. Charles Longley, M.P.S., chemist, formerly Senior Dispenser at the Apothecaries' Hall,

Blackfriars, E.C., a tin of menthol and cinnamon lung and throat pastilles for motorists, airmen, industrial workers, and all engaged in dust-laden air, due to road transport or mechanical operations, atmospheres charged with obnoxious gases, or rapid changes of temperature. We understand that Mr. Longley, whose headquarters are at 52, Ivanhoe Road, London, S.E.5, is the original maker of menthol and cinnamon pastilles, and the price is 1s. per box.

OF great interest as proving the period of serviceability of a properly-constructed aeroplane, and incidentally one of the most noteworthy tributes to the unrivalled position of British design and construction, has been brought to the notice of visitors to the Amsterdam Aeronautical Exhibition. In a near-by aerodrome is a "Bristol" fighter, delivered by the constructors in September, 1917. It was immediately put into commission under active service conditions, and after doing considerable work in this direction, unfortunately landed in Holland. The pilot was naturally interned, and the machine was soon after bought by the Dutch Government. Though it has been continuously flown by Dutch officers it has never been repaired or renovated in any way, and every unit is exactly as when it left the "Bristol" works. Even the "Cellon" dope has never been renewed. The machine is still in service, and in great favour with the Dutch pilots.



AT THE AMSTERDAM EXHIBITION.
Two views of the stand of the British Emaillite Co., and the General Aeronautical Co., on which a comprehensive range of products of these firms are displayed.

CORRESPONDENCE

STUNT FLYING AND THE COMMERCIAL PILOT

[] I consider that a pilot who has never stunted at all, but has managed to come through unscathed, after, say, two years flying on heavy machines, is certainly qualified to act as a commercial pilot. If he has managed to combat the elements and other countless obstructions, such as engine failure low down, buildings, etc., for two years or more, if he has got himself out of the many tight corners he is bound to have been in, then, in my opinion, at the critical moment, he could certainly protect his passengers as well as the finest stunt pilot in existence.

S. DIXON,
late R.N.A.S., R.A.F.

Newcastle-on-Tyne.
September 5.

IMPORTS AND EXPORTS, 1918-1919.

Imports. Exports. Re-Exportation

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910). For 1910 and 1911 figures see "FLIGHT" for January 25, 1912; for 1912 and 1913, see "FLIGHT" for January 17, 1914; for 1914, see "FLIGHT" for January 15, 1915; for 1915, see "FLIGHT" for January 13, 1916; for 1916, see "FLIGHT" for January 11, 1917; for 1917, see "FLIGHT" for January 24, 1918; and for 1918, see "FLIGHT" for January 16, 1919.

	1918.	1919.	1918.	1919.	1918.	1919.
January ...	49,402	555,989	24,765	57,571	—	—
February	51,941	453,822	13,545	57,972	—	—
March ...	47,930	704,424	11,451	72,716	1,000	400
April ...	33,342	97,662	10,815	25,433	—	—
May ...	942,866	136,631	67,224	38,428	—	—
June ...	864,296	1,410	35,658	41,526	—	—
August	566,137	67,292	71,503	60,581	—	—
	4,390,207	2,153,693	245,761	395,517	1,000	400

NEW COMPANY REGISTERED

BEARDMORE MOTORS, LTD.—Capital £100,000, in £1 shares. Acquiring the business carried on by Aldee Motor and Engineering Co., Ltd., manufacturers of, and dealers in, motor cars, aero engines, aeroplanes, etc. First directors: Sir Wm. Beardmore, Bt., J. G. Girdwood, F. M. Luther and G. H. Allsworth. The two first-named are nominees of William Beardmore and Co., Ltd., and the two last-named are nominees of the Aldee Motor and Engineering Co., Ltd. Solicitors: Nicholson, Graham and Jones, 24, Coleman Street, E.C.

A Double Fatality near Lincoln

WHEN two machines were returning from overseas to the aerodrome, between Sleaford and Lincoln, on September 5, owing to darkness setting in the pilots decided to land. The first machine came down safely, but the other, when at a height of about 80 ft., suddenly nose-dived and crashed to the ground, killing both occupants instantly and smashing the machine beyond recognition. At the inquest on Lieut. W. E. Coulson and Engineer J. R. Taylor, both belonging to the 11th Squadron, on Saturday afternoon, a verdict of accidental death was returned.

Air Services in Argentina

WORD comes from Buenos Ayres that an Anglo-Argentine aviation company has been formed, at the head of which is Major S. G. Kingsley, R.A.F., of the Aircraft Manufacturing Co., who has recently been making some record flights on a Airco (De H) aeroplane. Major Kingsley states that he expects aeroplanes will become a common sight throughout South America.

Frightening the Ex-Kaiser

I LEARN from Amerongen that at 11 o'clock this morning an aeroplane appeared above Château Bentinck at Amerongen while the ex-Kaiser was walking in the gardens, writes *The Times* correspondent at Amsterdam, on September 1. The airman made a steep descent till he was 60 ft. above the ex-Kaiser's head.

The ex-Kaiser made a nervous movement of surprise and then fled. The airman, who was probably a Dutch airman, turned round and disappeared in a westerly direction.

From Prague to Paris.

Starting from Prague on a Breguet machine, Lieut. Story and Lieut. Blizence, of the Czecho-Slovak Aviation Service flew to Mayence, where they stayed for the night. The following morning they flew on to France, landing at Le Bourget 3½ hours after leaving Mayence.

AERONAUTICAL SPECIFICATIONS PUBLISHED

Abbreviations:—cyl.=cylinder; I.C.=internal combustion; m.=motors.

APPLIED FOR IN 1917

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published September 11, 1919

12,980. LEYLAND MOTORS and J. G. P. THOMAS. Electric starting and ignition of aeroplane engines. (131,005.)

APPLIED FOR IN 1918

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published September 11, 1919

5,012. D. J. MOONEY. Metal spars, girders, longerons, etc. (131,019.)
5,247. E. R. CALTHROP. Parachutes. (131,027.)
5,471. NIEUPORT AND GENERAL AIRCRAFT CO., H. L. HALL and C. A. SHARP. Application of dope to aircraft surfaces. (131,035.)
5,642. A. Q. COOPER. Aircraft control. (131,043.)
5,679. H. O. SHORT. Aeroplanes having multiple or twin engines. (131,044.)
5,680. H. O. SHORT. Hydro-aeroplanes. (131,045.)
5,709. S. O. COWPER-COLES. Door for aircraft sheds. (131,046.)
5,710. S. O. COWPER-COLES. Process for rendering aluminium and its alloys more durable. (131,047.)
5,711. S. O. COWPER-COLES. Metallic propellers. (131,048.)
5,206. D. J. MOONEY. Spars for aircraft. (131,065.)
6,359 and 6,360. R. F. POWER. Brakes for aircraft. (131,068 and 131,069.)
6,455. J. F. VERNER. Aeroplane controls. (131,071.)
6,533. VICKERS, LTD., SIR J. McKECHNIE and B. N. WALLIS. Mooring of lighter-than-air craft. (131,072.)
6,766. L. JANOIR. Flying-boats or water-planes. (131,075.)
6,898. D. J. MOONEY. Metal spars. (131,080.)
6,907. K. D. DOYLE. Apparatus for teaching bomb-dropping. (131,081.)
6,909. D. M. SUTHERLAND and WALL PAPER MANUFACTURERS, LTD. Varnishes or dopes for aircraft fabrics. (131,082.)
7,177. S. E. GROVES and T. W. H. WARD. Dopes or varnishes. (131,093.)
8,101. W. GREEN. Indicating strains produced in bracing-wires, etc. (131,099.)
8,659. R. ALLEN. Gun mountings for aeroplanes. (131,101.)
12,947. T. P. LEAMAN. Control of aeroplanes. (131,121.)
13,066. T. W. SAXTON. Inclination or deviation indicator. (131,133.)

APPLIED FOR IN 1919

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published September 11, 1919

1,435. J. H. DELATTRE. Wheels for aeroplanes, etc. (122,644.)
8,197. A. G. LEIGH. Aeroplanes. (131,252.)

If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xlvii, xlviii, xlix and 1)

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